



SOUTHERN RHODESIA.



REPORT

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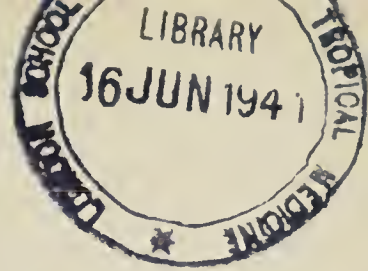
The Public Health

For the Year 1938

Presented to the Legislative Assembly,
1939.


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Report on the Public Health for the Year 1938.

THE MINISTER OF INTERNAL AFFAIRS.

I have the honour to submit the Public Health Department Annual Report for the year 1938.

INTRODUCTION.

I gratefully acknowledge the generous and valuable assistance rendered to me by Dr. D. M. Blair, Field Officer to the Department, in the preparation of the statistical portion of the Report.

I. HEALTH OF THE EUROPEAN.

With every passing year the activities of the Public Health Department become more widespread and each year sees our ramifications extending further and further afield, until to-day they enter into almost every phase of human life. Nor is this development peculiar to Southern Rhodesia, for in truth we are but following the lines already laid down for the progress of the human race in all civilised countries of the world. To-day monarchs and kings, dictators and democratic leaders recognise as a principle of almost axiomatic certitude, applicable to all forms of government, that the prosperity of a people depends upon the health of its population.

But health is not a concomitant of mere living; it is a positive achievement attained by the observance of many laws and determined by the correlation of many factors—good food, pure water supplies, suitable clothing, adequate housing, sufficient rest and exercise, protection from bacterial and parasitical attack and numerous other factors of similar character. Good health waits upon knowledge and a wise adherence to natural laws. If this dictum is true of individuals and peoples dwelling in their own habitat where, through the knowledge and experience of centuries, habits of life have become harmonised with environment, then how much more must it be true of a northern nation but recently transferred to a tropical climate and still endeavouring to establish and maintain its own type of civilisation under unaccustomed conditions and amongst an alien and primitive people. Here under tropical skies a kindlier nature inclines to relaxation and repose; no seourge of wintry wind whips up the languid blood to fresh or violent energies; nor does the stimulus of frost and ice and snow sharpen the tired mind or whet the appetite; here warm and pleasant days sap the energies and the powerful rays of the sun, sometime beneficent but always potentially malignant, limit exercise and compel restraint. Here, too, new and insidious forms of disease lie in wait for the unwary and the northern invader finds many enemies not numbered amongst the sons of the tribes of Ham.

In such an environment the responsibilities of a Public Health Department are heavy since upon its vigilance must rest the well-being of the people. Only by constant examination of the circumstances of the life of the community in work and recreation, in exercise and repose, in nourishment and housing, in health and disease, and only by continuous endeavour in the creation of a safe and sanitary environment, in the establishment of sound habits of personal hygiene, in the inculcation of the principles of healthy living, in the defence of the normal and fit as much as in the care and treatment of the sick, can these responsibilities be discharged and the health of the people be protected and maintained.

The policy of the Department is the health of the people—a task made doubly onerous by the circumstances under which we live. But the efforts of a Public Health Department, no matter how varied or how enthusiastically and strenuously maintained, are of little avail unless supported by the co-operation of the people whom it is endeavouring to serve. It is idle for any Public Health Department to conceive great schemes for the benefit of the people; new and better hospitals, greater facilities in the diagnosis and treatment of the sick, further extensions of the schools' medical services, medical research units for the investigation of the causes of disease—all these by themselves are useless unless the people for whose benefit they are intended

will co-operate in the observance of those rudimentary principles of healthy living which we are constantly enunciating, and in the adoption of those elementary precautions against sickness and disease to which with unrequited but undiminished enthusiasm we are continually beseeching the public to give heed.

Every year from public platforms and from annual congresses come fresh demands for the creation of further services, many of them entailing costs which would impose intolerable burdens upon the taxpayers of the Colony, and every year this Department's statistics show that insufficient use is being made of existing services and the knowledge already available to the public in the prevention of disease unapplied and ignored. In the opinion of this Department it is time that the people of the Colony realised that at least two-fifths of the ills that beset them arise from preventable causes and causes whose prevention lies almost entirely in their own hands—the use of quinine, mosquito nets and the insecticide spray pump for malaria; the avoidance at night of places known to be the breeding grounds of mosquitoes; the cutting of grass and bush around the dwelling place; the clearing of rain gutters and the drainage of stagnant pools of water; the clearing and cleaning of empty stands in the township; all these are elementary principles, known to almost every school child for the control and prevention of malaria. So also is the need for the boiling of water and milk intended for human consumption in rural areas; the proper disposal of night soil, the protection of food from flies and the prevention of fly breeding as defences against the contraction of typhoid, dysentery and other forms of intestinal diseases; the avoidance of contact with water suspected of being infected with the parasite of bilharzia; all these are principles of prevention well-known to the public, absurdly easy of putting into practice, yet daily disregarded by the great majority of people who, with an amazing complacency and despite all previous experience, persuade themselves that whoever else may pay the penalty they at least will escape all consequences; a wonderful faith so regrettably unjustified by the statistics of malaria and blackwater fever, dysentery, enteritis, and bilharzia, occurring within the Colony.

The aim of this Department is to extend our services as speedily as possible to meet the needs of the people, but numerous large hospitals, out of all proportion in size and number to the extent of the population are merely confessions of failure in the art and science of reasonably healthy living and are but parallels to the pills, purgatives and strong tonics with which the neurasthenic nerves himself to face the common round of everyday life.

If the public would but co-operate with us even only to a limited extent in the adoption and practice of the elementary safeguards we advise Southern Rhodesia with its many natural advantages of climate, sunshine and pleasantly alternating seasons, would rapidly become one of the fairest places on the globe for the habitation of man. Undoubtedly, increase in population, closer settlement, and the many varied forms of agricultural and social activities that come with the advance of civilisation will eventually relieve the public of the need for many of the precautionary measures which at present they find so irksome; but until that time comes the public must realise that good health can only be won and maintained by the observance of the various precautions we have advocated and by some measure of self-sacrifice in the cause of physical well-being.

Undoubtedly the first step in any public health programme must be the creation of adequate facilities for the treatment of the sick; those who have fallen before the onslaught of disease cannot be left to linger and perchance die on the battlefield whilst the general of the army is perfecting his plans for the eventual encirclement and destruction of the strongholds of sickness and death. First things must come first. Provision for the needs of the community in regard to the housing and treatment of the sick must first be made before we go on to deal with the conditions which are giving rise to these illnesses.

The Government Medical Service of Southern Rhodesia was originally created for this primary purpose and such share of the public finances as was made available to the Public Health Department was in the earlier years devoted

almost entirely to meeting this need. But it can hardly be argued that this claim is as potent in its appeal to-day as it was some few years ago. To-day practically every township in the Colony has its Government Medical Officer and almost every European township has its own hospital or is within reasonable distance of some provision or other for the housing of the sick.

Now that the immediate needs of the Colony in this regard are in process of being met, to continue any longer with the policy of devoting all our resources to the building of further hospitals and the creation of more curative medical services is obviously as foolish from the economic point of view as it is undesirable from the view point of public health. It must be apparent to every reasonable person that the time has come when it is essential that we should concentrate our energies on the reduction of the causal conditions giving rise to disease rather than continue to fritter away our resources in attempting to deal merely with the results and consequences of such conditions.

For these reasons we have recommended to Government the division of the country into six public health districts with a Medical Officer trained in the science of public health administration in charge of each area. Under this arrangement these officers will no longer be allowed the rights of private practice but will be expected and encouraged to devote their time and energies to a study of the conditions under which live the people of this Colony, both European and native. They will be expected to conduct surveys amongst the native people in their areas in respect of housing, nutrition and disease; they will be encouraged to study local conditions in respect of the European environment and to make suggestions for its improvement. Beneficial results will not be immediately apparent but a public health service will be built up throughout the Colony which will be a vigilant vanguard against the invasion of disease and a powerful force continually at battle for the improvement of the health of the people.

This recommendation is at present receiving the consideration of Government and it is hoped that a lessening of the tension in international affairs will enable Government in the coming year to accept the increased financial burden which its adoption will impose and to make a beginning in the creation of a public health service which the conditions of life in this Colony appear to us to render imperative.

Preventive medicine, however, must be based on knowledge of the local conditions and of the many causal factors in the origin and maintenance of disease. Therefore, in order that Government Medical Officers may be well armed both with knowledge and wisdom, we have recommended to Government the appointment in the coming year of a Medical Research Unit under the direction of that distinguished scientist, Sir Malcolm Watson, Director of the London School of Tropical Hygiene. Sir Malcolm Watson's name is a household word in the world of malariology, and whilst his knowledge of this disease is unsurpassed, his particular claim to fame rests upon the economic methods he has devised for its eradication and prevention.

Based on a wide scientific knowledge of every known factor in the causation of this disease, Sir Malcolm's outlook is nevertheless essentially an economic one, and his endeavour has ever been to persuade both individuals and communities of the folly of continuing to suffer heavy economic loss from the ravages and incursions of this disease, and in their own interests to stimulate them to the adoption of reasonable measures of prevention which will ensure for them not only health and happiness but that material prosperity so much sought after by the people of to-day.

With Sir Malcolm will be associated Dr. Alan Mozley, an expert biologist from the London School of Tropical Medicine. Dr. Mozley's part will be to endeavour to discover ways and means of solving our other problem of bilharzia; a disease which, though not so fatal in its immediate effects as malaria, is nevertheless responsible for much prolonged ill-health amongst the children of the Colony. Grouped around Sir Malcolm Watson and Dr. Mozley will be a number of our own scientists—the Director of Laboratory Services, Salisbury, the Field Officer, the Senior Laboratory Assistant, Salisbury, and an Engineer seconded for the purpose by the generosity of the Irrigation Department. This Unit will make a preliminary survey of the

whole Colony and when the various local conditions have been thoroughly studied, general plans for the combating of these and other diseases will be drawn up by the Research Unit as a whole. Sir Malcolm Watson will, in the first instance, visit the Colony for a period of three months, but he will return at intervals to inspect the progress of the work and to make further suggestions for its future conduct. Dr. Mozley will remain with the Research Unit for three years. His is a formidable task, for little is yet known of the bionomics of the snails which harbour the bilharzia parasite, and still less is known of any reasonably sure methods of prevention.

The Colony is fortunate in the selection of the members of the Research Unit and there is little doubt but that as a result of their work a great advance will be made in the improvement of the conditions of life in Southern Rhodesia.

The funds for the creation and maintenance of this Unit have been generously donated by the State Lottery Trustees, who are to be congratulated not only upon their generosity but also upon the wisdom and clarity of vision which enabled them to see in such a proposal the many benefits which might accrue to the people of the country.

Sir Malcolm Watson and Dr. Mozley are expected to arrive in the Colony in June of next year and the main portion of the research work, for which all plans have already been prepared, will begin immediately after their arrival in Salisbury.

Important as is the work of the Research Unit, there are other aspects of life in this country where the need for progress and reform is even greater. In report after report we have stressed the need for more adequate provision for the expectant mother, and a greater measure of comfort and security for the mother and child.

No country can afford to neglect this primary and essential condition of its well-being, and to-day, in some places by reason of the progress of liberal and humanitarian ideas, in others, I fear, under the urge of an intense nationalism and the threat of war, practically every nation in the world is at last turning its attention to the problems of maternity and devoting an ever-increasing portion of its resources to the provision of adequate facilities for the mother and child. In Southern Rhodesia no threat of war or other unworthy motive actuates us. We have long realised that the destiny of this Colony rests with the children who are born here. If, owing to lack of ante-natal care, inadequate assistance at the time of confinement, and the many malign influences of disease to which the mother is exposed, children are brought into this world handicapped from birth by the inheritance of an unhealthy body, the fate of the Colony will not long remain undetermined; a rising infantile death-rate will eliminate many who should have survived to perpetuate our race; a lowered resistance in the general stock will rapidly manifest itself and with a decreasing birth-rate will come the first dread intimation that once again a European civilisation has failed to establish itself in the tropical regions of Southern Africa. And yet with forethought and care and vision there is not the slightest doubt but that in Southern Rhodesia at least we could build up a European civilisation equal to that of any other part of the Empire. It cannot be done, however, without the expenditure of money, of labour, and of thought, nor can it be done unless we begin at the beginning and make reasonable arrangements for the care of the expectant mother and afford adequate protection to her offspring both through infancy and childhood. The health of the mother is essential if she is to produce a healthy child; the health of the child is essential if the State is ever to achieve stability or to attain that position in the world of the British Empire which we all so ardently desire for her. Holding strongly to these views but realising that owing to our financial limitations progress along these lines must be made gradually, we have recommended to Government the gradual acquisition by Government of all the Maternity Homes at present in existence in the country so that by means of the national resources their facilities may be extended and their services brought within the reach of every citizen; in addition, in order to relieve the rural communities of the ever-increasing difficulties of raising funds we have suggested that during this period of transition Government increase the present subsidies and thus enable the

local committees to carry on their good work without the constant threat of insolvency. Further, it is our most earnest desire to have a Maternity Block erected in connection with every Government Hospital in the Colony and to have associated with these blocks and with the Maternity Hospitals an Ante- and Post-natal clinic where every mother may come to seek, without charge and without embarrassment, advice and assistance in personal hygiene and in the rearing of her infant child. In addition, it is our policy gradually to build up in association with these facilities a District Nursing Service devoted primarily to the interests of maternity so that, with adequate ante-natal care, a comfortable and hygienic home for confinement where such facilities are required by the individual, an associated District Nursing Service whose members will be available for confinements in the patients' own homes, and whose advice will be ever at the call of the mother and child, there may in time be perfected a network of maternity services which will embrace within its scope the health, the happiness, and the home of every mother and child in this Colony. We lay no claim to originality in these ideas; they are in the main the basis and the foundation of every maternity scheme in every country; the wisdom they embody is undisputed; they are as essential for the well-being of Southern Rhodesia as they are for that of any European country. But a word of warning—they cannot be realised by stroke of wand, without money, and without sacrifice. If the people of the country want them—and I reiterate that they are essential for the preservation of the life of the people—the people of the country must be prepared to pay for them. The Public Health Department's present share of the revenue of the Colony will not permit of our creating these facilities overnight; nor indeed in a single year. Almost all our resources at the moment are devoted to the practice of curative medicine. Every year from every part of the country come fresh demands for greater facilities in curative services, and every year the Estimates of the Department increase in financial magnitude. But wild screamings for the moon will not help us. In wisdom and in sanity, in reason and in moderation, the people must realise that all these things cost money and that if the present state of financial equilibrium is to be maintained undisturbed, we must build with quiet and steady progress, content with our gradually increasing facilities and unperturbed by the many fallacious comparisons with other and richer countries so frequently hurled at our heads.

I have written much on the policy of Government in Public Health because I think it timely that the people of the Colony should know the goal at which we are aiming, and should realise the difficulties which beset us in the attainment of our ideals. The difficulties of the Department are mainly financial, but despite our constant endeavours to persuade Government to greater expenditure in the field of Public Health, we realise that moderation must be exercised and that undue expenditure in one direction must limit and cramp activities in another. But so convinced are we of the essential truth of our belief that the health of the people is a primary condition for all other forms of national activity, particularly so in a European community endeavouring to establish itself in a semi-tropical country, that with undiminished earnestness and, we hope, with unruffled persuasiveness, we shall continue to press our views upon Government in the hope that the pace of our progress may be increased and that within a reasonable time we may see in existence these many projects which we consider so urgently required for the improvement of the health of the people. Government can do much to lessen our difficulties, but the people of the Colony can do more. Public money spent on medical services is money wasted unless we can show some resultant benefit to the health of the people of the country; some individual benefit is good but some national benefit in which all participate is better. Curative services are essential, but preventive services afford the greater good to the greater number, and will eventually reduce both the need and the cost of curative services. But even preventive services must be properly organised and suitably harmonised with the activities of the life of the people. Lectures on health and hygiene are not sufficient; social public health which confines itself merely to pronouncements of hygienic precepts accomplishes little. Much is already known to the medical profession of the causes and means of prevention of disease but little of it

has as yet become part of the public stock of common knowledge. Medical knowledge must be linked with the life of the people and this can only be achieved when public health ceases to be regarded as an isolated science concerned only with drains and sewage disposal and dependant solely upon its supervision of hospital and medical services for its contact with the people. Public health is national health, the science of the prevention of disease, and to achieve its purpose public health must be linked up with every form of national activity. Isolated schemes for a wider and improved maternity service alone will not avail; only by concerted planning—planning which invites and secures the willing co-operation of the agricultural industry, the mining industry, commerce and trade, the townsman and the rural dweller, the European and the native—can the national health be built up and the knowledge of the means of prevention brought to the home of every inhabitant of this Colony. Other countries have realised this need and are moving towards this end. Southern Rhodesia, far more happily situated in its possession of vast and fertile lands and equable climate, in its comparative freedom from slums and mean and sordid townships, can attain this goal with less endeavour. Only systematic planning and co-ordination of effort are wanting; courage and enthusiasm are here in abundance if they could but be harnessed to the national need. That is the task of the Public Health Department. If, then, the activities of this Department seem at times to be more manifold than superficial circumstances warrant, and if at times we appear to be encroaching upon the preserves of others—and of this we have occasionally heard complaint—be it remembered on our behalf that it is our function always to listen to “the still, sad music of humanity”; our duty to protect the health of the people; our field the whole range of the activities of man. Even before his birth, at the moment of his conception, our task begins; nor do our duties end even with his death but only after his ashes have returned to the dust from which they sprang. The prosperity of a people depends upon the health of its individuals, and human happiness becomes attainable when physical well-being matches mental strength and moral worth: high standards and brave ideals, but the standards and ideals of all Public Health Departments worthy of the name, and the standards and ideals of the Public Health Department of Southern Rhodesia that we, too, in a sense peculiarly our own, may be found worthy of our motto and “worthy of the name.”

How far we have progressed towards the attainment of our ideals, an analysis of the vital statistics for 1938 will show. We may fairly claim, with no immoderate degree of boastfulness, a certain measure of success and a definite advance upon the road we have set ourselves to tread.

In previous annual reports and in many memoranda written to Government we have frequently deplored the waste of human life in infancy and childbed. One of the most striking features in the account we now render of our stewardship is the marked diminution in the figures of infant and maternal mortality. Whilst our statistics deal with small numbers where minor variations result in large fluctuations, nevertheless we can justly take credit to ourselves in the results achieved. Our present figures denote a great advance upon previous records and to our mind indicate not merely a definite improvement in the conditions provided for the parturient mother but an awakening of the national conscience towards its duty to infancy and motherhood. Correlated with these figures is the marked rise in the rates of natural increase; more babies are being born as is evidenced in the rising birth-rate, but more babies are being saved to carry on the torch of our civilisation and to play their part eventually in the future of our Colony.

The crude annual death rate shows no increase, though the standardised death rate shows a slight increase of from 9.6 to 9.7. As has been pointed out in previous annual reports, the death rate of the Colony is bound to increase and approximate to death rates elsewhere, as the constituents of the population become more akin to the constituents of populations elsewhere. The principal factor in that growing resemblance is the increase in the number of old people now resident in the Colony. In former years the population was a young one with relatively few elderly members. To-day the average age of the population has increased and with that increase must come a greater number of deaths of old people. The increase in the

annual death rate, therefore, is a normal increase in harmony with the altering type of population.

The vital statistics of a country are rightly held to be indicative of the conditions of the life of the people. Southern Rhodesia need fear comparison with no other country if our figures for 1938 can be maintained and if, indeed, they afford any real reflection of the life of the people of the Colony.

VITAL STATISTICS

	1936-1938		
	1936	1937	1938
Estimated European population	55,590	57,080	58,870
Rate of natural increase per 1,000 of population	13.13	13.53	15.6
Gross number of immigrants	2,586	3,008	3,509
Estimated net immigration	575	836	975
Number of European births	1,302	1,308	1,469
Illegitimate births included above	21	24	23
Annual birth rate	23.42	22.92	25
Number of European deaths	572	536	548
Annual death rate, crude	10.29	9.39	9.3
Annual death rate, standardised	—	9.46	9.7
Number of infant deaths	64	66	57
Infant mortality rate per 1,000 live births	49	50	39
Number of still-births (not included in either births or deaths)	27	20	31
Number of maternal deaths	9	8	3
Maternal mortality rate	6.91	6.12	2.0

NATIVE HEALTH

One of our greatest difficulties in endeavouring to assess the standard of native health is the lack of vital statistics. To obtain any idea of how the natives are faring in their rapidly changing environment we are compelled to rely on the monthly reports of Government Medical Officers and Native Commissioners, and on the monthly returns from mines, hospitals and clinics. Until it is possible to obtain accurate statistics of the rates of birth, sickness and death, we cannot form any real picture of what is taking place in the life of the native people, and can only guess at their reactions to constantly changing circumstances.

From the various reports which are at our disposal the opinion we have formed that the general standard of native health is improving seems justifiable, but it should be understood that this is merely conjecture based upon the collection of the impressions formed by other observers and might well be controverted if scientific evidence were available.

Out of the void of our ignorance, however, one fact indisputably emerges, and that is that the native people are seeking with increasing avidity the help and assistance provided by the clinics in times of sickness and ill health. The expansion of the clinic system continues as will be seen from the chapter in this report on Native Dispensaries and Clinics.

Much of what has been written of the European population is equally applicable to the Reserve native. Curative medical services and well-maintained roads of communication are urgently required so that in times of sickness medical facilities may be brought to his assistance with speed and dispatch. But again, curative services merely touch the fringe of the problem. What is more urgently needed is a re-orientation of the standards and ideas of the native people in regard to housing and diet, and the causes and origins of sickness and disease. On the subject of housing little need be said. All will admit that excellent as a pole and dagga hut may be as a temporary shelter it has little merit as a permanent residence; when occupied by a people of such unhygienic habits as the native it becomes

more than a symbol of poverty; it becomes the breeding-ground of many forms of sickness and death. It may be that by the slow progress of evolution the Reserve native, if left to himself, will gradually show the effects of European influence in the creation of a better type of habitation for himself and his family. But if that is to be the procedure adopted, the transition stage will be fraught with danger to the health of the European community. Almost every year there come from the Reserves epidemics of small-pox, chicken-pox, whooping-cough and mumps, some of which affect the children of the Europeans, interfere with their educational progress, and tax the capacity of the Health Departments of the country to suppress. The widespread dissemination of many of these infectious diseases is associated with the native's standard of housing and habits of life, and until new ideas in this regard prevail, the European will be continually exposed to this type of infection. Nor is the European himself without blame, for far too many of us still continue to condemn the native to live in the most miserable of hovels when he comes to our towns and farms to seek work amongst us. Thoughtlessness of this description brings its own punishment, unfortunately, however, not merely to the wrongdoers but to the whole community, for out of these wretched shacks of houses come many of the diseases which ravage us. In the Reserves the Native Affairs Department are striving with courage and energy to remedy this state of affairs, and to rouse in the native a desire for a better and more suitable type of habitation. The Public Health Department with a more generous measure of financial support from Government might play in conjunction with the Native Affairs Department a greater part in this campaign and by their help materially increase the pace of the process of transition. In European areas, the position should be met by local authorities and individual employers of labour. Legislation is undesirable, for the promptings of conscience and our own knowledge should be sufficient to stimulate us to a more liberal sense of justice in regard to the housing of our native servants and to a greater realisation of the danger which a continuance of the present state of affairs entails for ourselves. Better housing for natives in the European areas will react advantageously in the Native Reserves; and better houses in the Reserves will go far to reduce the annual incidence of infectious and contagious disease which year after year makes its regular appearance amongst the European communities.

On the question of native diet, there is also grave need for a change of outlook on the part of the native people. In Southern Rhodesia, the African at the present day lives almost entirely upon mealie meal. One often hears intelligent people deploring the laziness of the native, his lack of ambition, of energy, of initiative, of any desire to help himself, his content with the miserable conditions under which he lives, but one often wonders how much initiative, energy or ambition we ourselves would show if we also were compelled to live on a diet of mealie meal. Mealie meal is a cereal, predominately carbohydrate, a certain amount of which is essential in any balanced diet. But the human body requires in addition other articles of food to use that carbohydrate properly and to build up a body full of strength and energy. Protein and fat are necessary and a definite amount of vitamins is required for normal health. A diet of mealie meal does not provide these in sufficient quantities and yet they are essential for human welfare. It is amazing how much energy and initiative the native displays on the barest minimum of these essential foodstuffs with which he is so occasionally able to augment his meagre diet. If the Rhodesian native could be persuaded to alter his method of feeding and to use his lands for the production of suitable foodstuffs for his own requirements and not solely for export—tomatoes, lettuce, onions, cabbage, carrots and potatoes—to use his cattle, as the white man does, for the nourishment of his own body, and not hoard them as a form of accumulated wealth; to use the milk of his cows for the benefit of his wife and family; to eat eggs and fruit, cheese and butter and vegetables, one could predict with almost absolute certainty that within two generations this people would slough its habits of idleness and become a nation of energy, drive and initiative second to none in Africa. Good food in adequate quantities, won as the result of his own toil from the lands at his disposal, would increase the health and strength of his body, would protect him from many of the diseases which now assail him; would alter his outlook on life by furnishing him with an abundance of vital energy which would find its natural outlet in a rapid improvement of his living conditions. We know that these

are views not universally subscribed to in this Colony, and we know that some at least consider we show too ardent a desire for the improvement of native conditions. But if the incidence of disease is to be reduced amongst the European population, if infections such as malaria and bilharzia are ever to be brought within reasonable limits of control, the outlook of the native must be radically altered, his environment brought under proper sanitary supervision and his whole standard of living uplifted and enriched. Until this has been achieved, the native will continue to take his toll from the European community in penalties of acute sickness, prolonged morbidity, and at times even death. In recent days there has been much talk of the shortage of labour and the inefficiency of the native. Inefficiency depends in great measure upon physical condition, and physical condition depends upon adequate food. Four hundred and sixty reported cases of scurvy with 11 deaths furnishes a queer commentary upon the inefficiency of the native. It would be unfair however, as well as untrue, to suggest that these figures and our comments involve any large proportion of the employers of labour in this Colony; happily for us almost all the large employers and a great number of the smaller employers of labour realise their responsibilities in this matter, and use every effort to see that their natives are properly fed and decently housed. But there still remains a small section of the population which, despite all advice and warning, persists in its courses and seems determined to besmirch the good name of this Colony for fair dealing.

It is not the function of this Department to deal with native labour questions as such; our duty is with public health, and from that point of view only we say with assurance that insufficient rations and bad housing are contributory factors; we say further that disease is not the sole cause of the sterility of native women and perhaps in view of the inadequacy of present day native diets is not even the main cause. For that reason we believe that were our views on the subject of the improvement of native life more generally accepted, there would follow within one generation such an immediate increase in native population as would eventually lessen our difficulties in this matter of labour supplies. Again with improved dietaries and a more wholesome sanitary environment, many lives which to-day are lost would be preserved for the perpetuation and increase of the native people and during their own lifetime would make their own particular contribution to the settlement of the labour difficulty. However, in his own days John was a voice crying in the wilderness and in our own country we can hope for no better fate.

But though considerations of protection from sickness and disease avail not, and though appeals to the baser motive of material prosperity in the settlement and solution of our native labour problems are vain, there still remains the appeal to the conscience of the people, and in this I put my trust; firmly believing that the spirit and moral sense of the British nation lives on undiminished in the minds of the people of Southern Rhodesia, and that despite individual and sectional differences of opinion, powerful and vociferous as these may sometimes be, the claims of the native to the benefits of our common humanity will not go unheeded and that by the ever increasing pressure of a rapidly growing public opinion, the native in his own sphere and along his own lines of culture and development will be assisted and encouraged to rise up from his present insanitary conditions of poverty and squalor and to amend his habits and mode of life so that in a reasonably hygienic environment and under comfortable and suitable conditions he may cease to be a danger to the health of the European community and may enjoy for himself the many advantages which European culture and civilisation bring.

Hospitals

During the past year the new European Hospital at Gwelo was completed and opened for public use. This hospital, which provides accommodation for 56 beds, is one of the finest of its type in the African sub-continent and incorporates all the most modern ideas in hospital architecture and in facilities for the diagnosis and treatment of the sick. Within its wards, provision has been made for the parallel bed system and each patient is assured of privacy by means of a novel arrangement of bed curtains which renders the use of ward screens unnecessary. Single rooms and wide verandahs afford conditions for the sick which are conducive to quietness in serious illness and to peaceful convalescence when health is returning.

On 1st April, 1938, the Rusape Hospital, which had been built and maintained by a local committee, was taken over by Government. This building has been reconditioned and will continue to function as a general hospital until funds are available for the erection of a new hospital, when the existing building will be converted into a maternity home.

At Bulawayo the building of the new hospital is proceeding apace, and during the course of the year tenders were invited for the construction of the hospital block itself. The Nurses' Home is nearing completion and is expected to be ready for occupation towards the latter part of the coming year.

At Gwanda, the erection of the new Nurses' Home was completed and the building opened for occupation early in May. At Gatooma the many alterations and additions which were under construction were completed during the course of the year and are now in full use. These include the X-ray block, comprising dark-room, dressing room, film-room, etc.; extension of kitchen buildings, new staff dining-room and the conversion of the old staff dining-room into a children's ward with an additional verandah; new offices for the Matron, Secretary and Doctor, new linen room and new duty room; new bathrooms and the enlargement of the European male and female wards.

At Umtali one of the blocks of the existing hospital has been reconstructed so as to provide additional accommodation for Europeans. A new X-ray block has been built to bring the services up to date, both in respect of equipment and accommodation, and the Nurses' Home has been enlarged by four rooms to provide accommodation for additional staff.

At Ingutsheni Mental Hospital, a new Nurses' Home has been erected, capable of accommodating 15 nurses. Many alterations have been made in the hospital buildings for the purpose of improving amenities for the patients.

At Salisbury Hospital a new block of eight rooms has been added to the Nurses' Home in order to provide quarters for the increase which has taken place in the staff there.

Government Medical Service

During the year the establishment of Government Medical Officers has been increased for 35 to 38. Both Chipinga and Hartley have been raised to the status of full Government Medical Officerships, and an officer has been appointed to each of these areas. In the coming year Que Que also will be granted the same distinction and a full-time Government Medical Officer will be appointed to serve the needs of the district.

At Ingutsheni Mental Hospital a second Medical Officer has been appointed to assist the Medical Superintendent to cope with the many new forms of treatment which have recently been introduced there. Negotiations for the appointment of a part-time radiologist at the Bulawayo Hospital have now been completed and this officer will commence his duties on 1st April of the coming year.

During the course of the year three additional Aided Government Medical Officers were appointed—one to serve the district of Inyati, one to serve the Belingwe area and one for the Victoria Falls area.

In order to free the Victoria Falls area from the danger of malaria and to use to greater advantage this valuable natural asset, Government has undertaken, at the instance of this Department, the erection of a model native village situated at a distance of one mile from the Falls Hotel, where all natives employed and at present resident in the Falls area will be suitably housed under attractive conditions and in a hygienic environment. These natives will be subjected to a periodic medical examination by the Aided Government Medical Officer. In addition, Government has accepted responsibility for the anti-malarial work at the Falls with a view to rendering the district completely innocuous from the point of view of malarial infection.

We have already expressed our views on the functions and duties of the Government Medical Service. We have admitted that curative services are necessary and must be provided, but we have also indicated that we think the time is ripe for a re-orientation of ideas. In our opinion the Government Medical Service ought nowadays to be essentially a Public Health Service concerned with the preventive side of the science and art of medicine. The chief duties of the Government Medical Officer should comprise the pre-

vention of disease, the control and suppression of epidemics, the improvement of local conditions which give rise to disease, and the general health welfare of the people in his area. Unfortunately, however, these objects have neither been encouraged nor pursued and the Government Medical Officer of the day is for the most part a general medical practitioner engaged in private practice and subsidised by Government in the performance of this function. The fault does not lie with the individual medical officers, the great majority of whom have made full use of the opportunities provided by Government in the way of study leave to improve their medical knowledge and to befit themselves for more responsible functions and posts; but the claims of private practice in the various areas are so great that the Government Medical Officer has had little opportunity to devote himself to the less spectacular side of preventive medicine. Beyond the superintendency of the local hospital—if one happens to be in the area—and his availability for medico-legal work, little use has hitherto been made of the Government Medical Officer's services as a factor in the promotion of public health. Some years ago the pressure of private practitioners compelled the withdrawal of the Government Medical Officers from private practice in Salisbury and Bulawayo, and though the advantages of the position so created have been abundantly manifold, no effort was made to extend this practice to other towns of the Colony where its institution was equally desirable and likely to be followed by similar benefits. An attempt has been made during the last year to remedy the position, and Government Medical Officers now furnish the Public Health Department with a monthly report on the health and sanitary conditions of their respective areas. The compulsion of this report renders knowledge of local conditions essential and ensures a closer co-operation between the people, the medical service and the Public Health Department. In addition, other public health duties have been brought within the scope of the Government Medical Officers, and visits are now paid regularly to Government schools in their areas and the advice of the medical officers made available in respect of many matters connected with the health of the school child. Government Medical Officers also have been encouraged to take a leading part in the improvement of local conditions by accepting membership of Town Management and Village Sanitary Boards, and extending their influence by lectures and talks to farmers' associations and to other societies interested in local welfare. Next year we hope to extend this process and by the withdrawal of further officers from private practice gradually to establish a real and active public health service whose primary duties will be the improvement and protection of the health of the people.

Public Health Laboratory Services

Of the Laboratory Services supplied and supervised by this Department little need be said here since much valuable information concerning the scope and nature of this sub-department's operations can be found in the reports submitted by the two Directors of Laboratory Services. Numerous extensions are being made to the Salisbury Laboratory to provide additional accommodation for personnel and equipment, particularly in respect of the housing of the new Medical Research Unit. Dr. Ross, of the Bulawayo Laboratory, will take over the directorship of the Salisbury Laboratory in the place of Dr. Blackie, who has recently resigned. Dr. Blackie goes to seek new experience in private practice and whilst we regret his decision, we pay tribute to his many services in the field of laboratory endeavour in Southern Rhodesia and we wish him every success in his new venture. In Bulawayo, laboratory work is hampered by lack of suitable accommodation but ample provision for all forms of service has been made in association with the new Bulawayo General Hospital, and we are confident that with the completion of this hospital the laboratory services of Matabeleland will be at least as extensive and as well-equipped as those of Salisbury. Dr. Davis, Professor of Pathology in the Hong Kong University, is arriving early in the new year to assume the duties of Director of Laboratory Services in Bulawayo.

The Government Analyst's Department

This small sub-department which in one way or another serves almost every other department of the public service, continues to flourish and increase. During the year additional assistance in personnel was afforded by the appointment of Mr. N. G. Shirley, M.Sc., not only to meet the increasing volume of

work but also to enable Mr. Faer, the director of this sub-department, to devote some portion of his time to a branch of research he is undertaking in association with the Medical Unit. It is interesting to note that many of the methods now generally employed in the analysis of water were originally devised by the staff of this small sub-department, and have been adopted as standard practice by other laboratories engaged in similar work elsewhere.

Schools Medical Service

The energy and enthusiasm shown by the two professional members of the small staff of this branch of the Department have been so consistently and energetically applied to the betterment of conditions in the schools and amongst the school population that it is difficult to speak temperately of the value of this great work. As soon as funds became available last year, these two officers commenced a thorough clinical and laboratory examination of the whole of the school population of this Colony. This enquiry, which not only involved a complete physical and mental examination of the individual but also a thorough analysis of his previous history and conditions of life, was supported by a laboratory examination of specimens of blood, stool and urine. The results of this investigation will be found in the admirable report submitted by these two officers.

In addition, a clinic for the examination of all cases of defective vision was inaugurated, with the result that to-day every school child's eyesight is scientifically tested and those whose sight is found to be defective can obtain glasses at a minimum cost.

Special visits were made to schools where the Department had reason to believe that the child population was suffering from the effects of local disease or malnutrition, and in many cases vigorous action has been taken as a result of the reports submitted by the Schools Medical Officers.

The acceptance by Government of the responsibility of maintaining rural school-hostels has enabled us to provide regular medical services for all school-boarders in the rural areas. In view of this new departure, we think it well to remind parents that where by reason of straitened circumstances they are unable to afford the medical treatment recommended for the children by the visiting medical inspectors of schools, Government has provided that all such treatment can be obtained free of charge at the hands of the local Government Medical Officer.

Southern Rhodesia Government Nursing Service

The establishment of qualified nurses has been increased by the appointment of 50 additional nurses during the last two years. In 1937, 33 nurses were appointed and during last year a further 17 were added to the establishment. Conditions of employment have been revised and the number of nurses anxious to join the Service is ample evidence of its attractiveness and popularity. Salaries have been increased, working hours reduced, leave conditions improved, and a cash bonus substituted for certain travelling facilities previously granted. To qualify for six months' leave on full pay, plus a generous allowance in lieu of board and quarters, plus a holiday bonus of £85, a qualified nurse serves for a period of three years and undertakes to serve at least one year after resuming duty. Thus, after returning from leave and working for one year a nurse discharges all obligations to Government in respect of the many benefits granted to her. Much has been made of the many disabilities attaching to the nursing profession in general and many tears shed over the arduous conditions in the Rhodesian Nursing Service in particular. We say quite frankly that it is time this form of undesirable publicity ceased. It is definitely distasteful to the more responsible and senior members of the nursing staff and it is quite clearly undermining the discipline in the hospitals. Whatever truth it may have had in previous years, it is definitely not true of present-day conditions. The qualified staff are happy and contented, and admission to the ranks of the qualified service is sought after by members of the profession from all over the world. Other countries are faced with serious shortages in their nursing services: Southern Rhodesia is in the happy position of having a superfluity of applications and can afford to exercise discretion in the choice of its members. The student-nurses have little to grumble at in the terms and conditions of their probationship, and despite the keen competition from other spheres of employ-

ment a long waiting list of applicants betokens the popularity of the profession and the attractive conditions of the Southern Rhodesian service. To our mind, it seems a pity to spoil the effects of an excellent training under particularly pleasant conditions by continuous inaccurate references to the terms of employment and the harsh conditions under which student-nurses work. Undoubtedly there will always occur minor hardships and minor grievances in any nursing service, but there are legitimate channels of redress open to every member of the service without having recourse to the noise of the public platform or the strife of the political arena. To-day, every nurse, even the newest probationer, has the right of appeal in turn to her Sister, her Matron, her Medical Superintendent, the Medical Director, the Public Services Board, and finally to the Minister. Somewhere in that long channel of appeal she is bound to find justice if her complaint is well-founded, and as she has in each instance the right of stating her own case, ample opportunity is afforded her of obtaining redress. Clearly it is time the public appreciated the fact that nursing conditions in this country have improved out of all recognition during the last few years, and clearly it is time that we were left alone to develop our service in peace and quietness for the benefit of the patients whom it is destined to serve. Bad conditions do not usually make good nurses—a fact which the Government of the day has fully and generously recognised—but good conditions do not necessarily make good nurses; there is need for a quiet time of serious study and steady training, of self-discipline, and a ready conformity to the rules of the hospital and the traditions of the profession. Without that attitude of mind and habit, a nurse is worse than valueless; she is a menace to the public and a source of danger to the patient whose life is entrusted to her care. The qualified staff have acquired their knowledge and their habits of mind in their nursing-schools where these ideals were accepted and maintained. It is their duty to impart this knowledge and these traditions to the student-nurses of Southern Rhodesia. They complain, and I think with justice, that they cannot do that effectively if the false light of inaccurate public criticism is to be continually directed upon their work; they claim, and again I think with justice, that Government should satisfy itself of the reasonableness of their conditions and the manner in which they discharge their functions and that thereafter any complaint to the public should be subject to the discipline of the service. These are the views of the sisterhood and the senior members of the qualified staff. In my opinion they merit the serious consideration of every thinking member of the public.

STAFF MATRON'S REPORT FOR THE YEAR ENDING 31ST DECEMBER, 1938

Southern Rhodesia Nursing Staff

Office Held	JANUARY, 1938		JANUARY, 1939	
	Estab.	Actual No.	Estab.	Actual No.
Matrons	14	12	19	17
Dietitians	2	1	2	1
Sister Tutors	2	2	2	2
Sisters	29	28	30	30
Qualified Nurses	93	88	103	103
Student Nurses	110	104	110	110
	250	235	266	263

There were 40 qualified nurses appointed during the year and 34 resigned. Twenty-five qualified nurses and one sister left to be married; 25 of this number have taken up residence in the country. One was transferred to the Education Department; 4 had to return home owing to illness of their parents; 3 left to better their position; 1 left on completion of contract.

Thirty-eight student nurses were appointed to the Service during the past year and 32 resigned. Out of this number, 12 completed their contracts; 11 left to be married; 1 left for family reasons; 2 left on account of ill-health; and 6 were unsuitable.

During the year 1938, applications for admission were received from 125 qualified nurses and from 119 girls wishing to take up nursing.

At the beginning of March, the student-nurses were granted four hours off per day, thus bringing the working hours of nurses to:—

Staff	No. of hours per day	No. of hours per fortnight
Sisters	8	94
Staff Nurses	8 $\frac{1}{4}$ -8 $\frac{1}{2}$	98
(alternate weeks)		
Student Nurses	8 $\frac{1}{4}$ -8 $\frac{1}{2}$	99
(alternate weeks)		
Night Staff	8 $\frac{3}{4}$	108
per night		

An extra 7 days' leave per year was also granted to the student-nurses, which amply makes up for the extra time worked, and which has been taken advantage of by a large number of the student-nurses to proceed to the coast for their 28 days' leave.

An eight-hour day in a 3 section of 24 hours for the nurses was considered but it was found that the present way of working was much more favoured by the nursing staff and more convenient for the smooth running of the hospitals.

The senior student-nurses were also granted an extra half-hour's leave when off in the evening.

A considerable amount of information regarding working hours and conditions of service had been collected from various hospitals throughout the British Colonies and also from England and Scotland. The conditions of the Southern Rhodesia Nursing Staff compares more than favourably with any of these Services.

F. PETTIGREW,
Staff Matron.

Schools Dental Service

During the course of the year a further appointment was made to the Schools Dental Service, thereby enabling all schools to be visited at least twice a year. The new officer is stationed at Gwelo and his field of operation is the area known as the Midlands. As the result of this appointment, a Schools Dental Surgeon is now available in Salisbury for the north-eastern end of the Colony, in Gwelo for the Midlands Area, and in Bulawayo for Matabeleland south of the Midlands. In addition, this appointment enabled us to undertake the work of treating all children attending Aided Farm Schools. The total number of children involved amounts to approximately 12,000. Further, with the assistance of this third officer we have not only been able to undertake this dental work but also to arrange for all schools in the Colony to be visited twice a year.

Free dental treatment is available for all children whose parents are destitute or for children who may be the subject of a recommendation by the headmaster of the school. All children at places where there are no private practitioners are treated at very moderate charges by the Government Dental Surgeons. Where there are private practitioners available the Government Dental Surgeons merely inform the parents what treatment is necessary. At present the Government is negotiating with the dental profession in an endeavour to arrive at an arrangement whereby every child in the Colony will be enabled to obtain treatment free or at much reduced rates.

Lady Stanley District Nursing Service

The Lady Stanley District Nursing Service which was begun as an experiment in two areas of the Colony and extended by a further appointment during the year, has proved such a great success that arrangements are being made for a rapid extension of these facilities in 1939. Many letters of grateful acknowledgment of the good work of these nurses have reached the Department, and it is already obvious that the District Nursing Service will constitute one of our most important factors in the fight against sickness and death. Although the function of this Nursing Service is primarily concerned with maternity and child welfare work, the presence in the area of members of its staff has given a sense of security to the local population and in many emergencies where no medical aid was available their assistance has proved invaluable. When this service was begun it was not anticipated that the services of these nurses would materially effect the maternal and infantile

death rate for some time to come, but the statistics for this year show that their influence is already a potent one and the monthly returns demonstrate that the large majority of womenfolk in the areas where these nurses are stationed are making full use of the service provided and are profiting by the advice and assistance rendered. With the help of the increased number we hope to provide next year, this service should be finally established as part of the public health framework of the Colony, and the success already attained justifies a confident outlook for even better results in the future.

The Silicosis Commission

Perhaps the most outstanding feature of last year's work was the appointment by Government of a Commission to investigate the incidence of silicosis, asbestosis, tuberculosis, and allied diseases amongst the mining community of Southern Rhodesia. The question as to whether silicosis and its allied diseases could be contracted in the mines of this country has long been a vexed one, and following upon a report made by this Department after a period of investigation extending over two years, Government, on our recommendation, decided to appoint a Commission to investigate and to determine the matter clearly and definitely. It was fortunate for Southern Rhodesia that we were able, through the kindness of the Union Government, to obtain as Chairman of the Commission, Dr. L. G. Irvine, who has for many years been the Chairman of the Miners' Phthisis Medical Bureau in Johannesburg. Dr. Irvine deservedly enjoys an international repute for his knowledge of the many factors bearing on this problem, and the report recently submitted by him to Government on the result of his investigations in Southern Rhodesia bears striking testimony both to his wide knowledge of his subject and his personal ability as a scientific investigator of the first order.

With Dr. Irvine in the medical side of his research were associated Dr. C. W. Robertson and Dr. W. Blackie of this Department.

As this report is at present receiving the consideration of Government and will eventually be the subject of discussion in Parliament, we do not intend to deal with it here, but it is interesting to note that the investigation has demonstrated that the incidence of silicosis in the mines of this country is relatively small.

Local Authorities

In Southern Rhodesia, local authorities are fortunate in the amount of financial assistance they receive from the central Government. This is particularly true of the two larger municipalities, Salisbury and Bulawayo, where Government contributions on a generous scale have assisted in the provision of new hospitals for the treatment of infectious diseases amongst the European, coloured and native sections of the community of those two townships. In addition, generous funds for the treatment of V.D. amongst the coloured and native peoples are provided by Government to assist local authorities in the control and suppression of V.D., and where municipalities and local authorities engage in maternity and child welfare work their activities are heavily subsidised by contributions from the national exchequer.

An analysis of the amount of these generous subsidies to the two larger local authorities affords interesting and instructive reading.

(1) *Hospitals for Infectious Diseases amongst Europeans.*—The conditions which determine the amount of the grant paid by Government to local authorities in respect of such institutions are laid down in section 45 of the Public Health Act, 1924, and the sum payable is a refund by Government of half the capital cost and half the annual maintenance costs. In addition, Government guarantees to the local authorities the payment of all fees incurred by persons admitted from outside the boundaries of the municipality or township to the local hospital.

(a) In Salisbury the contributions made to date by the Government towards the cost of the erection of the new Infectious Diseases Hospital, which was opened in May, 1937, amount to £10,293, and the municipality's claim for a further contribution of £527 is at present under consideration. If, therefore, this further claim is accepted, the Government's contributions will amount to £10,820, which means that the total capital cost of the hospital, which provides accommodation for 20 beds, is £21,640. The amount paid

by the Government in respect of fifty per cent. of the maintenance cost of this hospital for a year was £1,666, which included expenditure on the emoluments of both the European and the native staff (excluding the doctor).

(b) In Bulawayo, the contributions made by the Government towards the cost of the erection of the new Infectious Diseases Hospital, which was opened in October, 1938, amounted to £16,620, which means that the total cost of the hospital, which provides accommodation for 36 European and 10 coloured beds, was £33,240.

The amount paid by the Government in respect of fifty per cent. of the maintenance cost of the hospital for a year was £887, which also included expenditure on the emoluments of both the European and the native staff (excluding the doctor).

(2) *Child Welfare*.—(a) In Salisbury and surrounding suburbs, practically all child welfare work has been taken over by the municipality, but the Government makes the following contributions towards the expenditure involved:—

- (i) Half the cost of health visitors' salaries and uniform allowances (including health visitors who are appointed to replace officers on leave);
- (ii) the total cost of health visitors' transport outside the municipal area;
- (iii) a grant of £60 per annum towards the cost of milk for expectant mothers and children under school age;
- (iv) free drugs.

The Government's contributions to the municipality for child welfare work amount to over £500 per annum and, in addition, the sum of approximately £100 per annum is paid by the Government to the Loyal Women's Guild, Salisbury, for the supply of milk to the Hatfield and the Coloured School, and a contribution of £50 per annum is made to the Rhodesia Children's Home.

(b) In Bulawayo, child welfare work is undertaken by a public body known as the Child Welfare Society, to whom the Government contributes £120 per annum towards the salary of the health visitor, £100 per annum towards the cost of running the creche and £52 per annum towards the maintenance of a child in the Hope Fountain Home. The Government's contribution to the Society will be increased by £100 during the current year.

(3) *European Ambulances*.—In respect of the European ambulance at both Salisbury and Bulawayo the Government contributes half the capital cost of the ambulance and refunds to the municipalities half the net cost actually and necessarily incurred in management and maintenance.

(4) *Natives: Treatment of V.D. and Infectious and Contagious Diseases*.—The Government contributes to local authorities half the cost of erecting infectious and contagious diseases hospitals and pays half the cost of maintaining these hospitals. In addition, Government contributes two-thirds of the cost of erecting V.D. hospitals and pays two-thirds of the cost of their maintenance.

(a) The Salisbury municipality proposes to proceed in the near future with the erection of a combined new lazaretto and native infectious diseases hospital at an estimated cost of £9,225, of which the Government will contribute £5,525. The cost to the Government of maintaining the lazaretto and native infectious diseases hospital in Salisbury last year was £950 and, in addition, V.D. drugs were supplied free of charge.

(b) The Bulawayo municipality also contemplates the erection of certain new buildings in connection with the treatment of disease among natives and it is estimated that the Government will contribute £880 towards the erection of the new centre for the treatment of V.D. and £1,500 towards the erection of the new native hospital for treatment of other infectious disease, i.e. a total of £2,380. The cost to the Government of maintaining the native V.D. and infectious diseases hospitals in Bulawayo last year was £1,682 and, in addition, V.D. drugs were supplied free of charge.

(c) A dispensary is maintained at both the Salisbury and Bulawayo locations and the Government refunds half the salaries and allowances paid to the staff and supplies free of charge all drugs and dressings. At Salisbury the dispensary is maintained by the municipality, whereas at Bulawayo the dispensary is maintained by the Native Welfare Society. In each instance the amount Government is called upon to pay is approximately £120 per annum, plus the cost of all drugs and dressings.

The following is a summary of the approximate payments made or to be made by the Government to local authorities and other societies at Salisbury and Bulawayo in respect of public health services:—

	Salisbury	Bulawayo
1. New Infectious Diseases Hospital for Europeans:—		
Capital Expenditure (approx.)	£10,500	£16,620
Maintenance Cost per annum —	1,666	887
2. Child Welfare, per annum	650	372
3. European Ambulances:—		
Capital Expenditure	290	268
*Maintenance Cost per annum	11.	238
4. New Buildings for Medical Treatment of Natives:—		
Capital Expenditure	5,525	2,380
Maintenance Cost per annum	950	1,682
5. Location Dispensaries:—		
Maintenance Cost per annum	120	120
	<hr/> £19,712	<hr/> £22,567

In addition, the Government provides all drugs for the treatment of venereal disease free of charge, and provides all drugs and dressings for the location dispensaries free of charge.

* It should be borne in mind that the reason for the small maintenance figure shown for Salisbury last year is due to the fact that the public are charged for the use of the ambulance and the Government now guarantees the Salisbury City Council against loss in respect of all ambulance fees incurred in connection with patients from places beyond the municipal boundary.

CHAPTER I.—VITAL STATISTICS

(1) POPULATION

The European population at the 30th June, 1938, was estimated at 58,870, an increase of 1,790 over the 1937 figure. The coloured population, including Asiatic peoples, was estimated at 5,670, being an increase of 140 over the previous year's figures. The native population is considered to be 1,311,000 so that the total population of the Colony is estimated at the 30th June, 1938, to be 1,373,540.

The vital statistical position of the native population still remains at the unhappy stage where all discussions on their birth rates, death rates, infant mortality rates and maternal mortality rates are mere conjecture. We rely on an estimated figure of the total population—and that figure is estimated from the most meagre information—as the sole vital statistical index of the progress and communal prosperity of our native African population. It is a strange comment on our national fact-finding that the returns of the cattle and pig population of the Colony are probably at least as accurate as the returns of our native African human population. With these remarks the discussion of the vital statistics of all races but European is closed.

The annual rate of natural increase per 1,000 of the population, that is, the excess of births over deaths, shows a further increase to 15.6 per thousand as compared with 13.5 per thousand last year. This increased rate is due largely to an increase in births and, to a less extent, a decrease in the number of deaths.

The gross number of immigrants was 3,509 for 1938, with an estimated net immigration figure of 975.

(2) BIRTHS

In 1938 there were 1,469 European births as compared with 1,308 in 1937. This figure gives a birth rate of 25.0 per thousand. Included in the total of births are 23 illegitimate births, giving a proportion of illegitimate births of 1.57 per thousand.

The birth rates of recent years are given below and for comparative purposes the corresponding rates for the Union of South Africa and England and Wales are shown :—

European Birth Rates, 1921-1938

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	24.6	26.6	18.3
1930	24.2	26.4	16.3
1931	23.6	25.4	15.8
1932	22.8	24.2	15.3
1933	21.5	23.5	14.4
1934	22.8	23.4	14.8
1935	22.3	24.5	14.7
1936	23.47	24.72	14.8
1937	22.92	24.9	14.9
1938	25.0	25.1	Not available

(3) DEATHS

(A) *Number of Deaths.*—In 1938 there were 548 European deaths, giving a crude death rate of 9.3 per thousand, which is slightly lower than the rate last year.

European Death Rates, 1936-1938

Year	Crude death rate, Southern Rhodesia.	Standardised death rate.		
		Southern Rhodesia.	Union of South Africa.	England and Wales.
1936	10.3	10.6	9.5	9.2
1937	9.4	9.5	9.7	9.3
1938	9.3	9.7	(a)	(a)

(a) Not available.

(B) *Causes of European Deaths.*—The following table gives the causes of European deaths in the last quinquennium. More detailed information is furnished in the table of deaths classified according to the International Classification of Deaths, to be found at the end of the report :—

Causes of European Deaths, 1934-1938

Cause of Death	1938	1937	1936	1935	1934	Totals	Percentage of total deaths
1. Cancer	50	54	52	46	41	243	8.91
2. Violence (all forms)	59	46	46	55	46	252	9.24
3. Heart diseases	83	77	81	69	63	373	13.68
4. Pneumonia and bronchitis	48	46	58	41	36	229	8.40
5. Malaria and blackwater fever	57	37	66	56	52	268	9.83
6. Nervous diseases	20	23	32	21	33	129	4.73
7. Premature birth and diseases of early infancy	30	36	33	29	25	153	5.61
8. Tuberculosis (all forms)	10	3	4	17	11	45	1.65
9. Influenza	14	25	9	30	20	98	3.59
10. Diarrhoea and enteritis	10	8	4	13	9	44	1.61
11. Old age	11	8	14	9	4	46	1.69
12. Enteric fever	5	4	2	5	10	26	0.95
13. Diphtheria	3	6	6	5	5	25	0.92
14. Dysentery	2	2	2	7	14	27	0.99
15. Whooping cough	3	1	...	6	1	11	0.40
16. Measles ... ..	...	3	1	1	...	5	0.18
17. Scarlet fever ... ..	...	...	...	3	...	3	0.11
18. Other causes	143	157	162	150	138	750	27.51
Totals	548	537	572	563	508	2,727	100.00

(4) INFANT MORTALITY

In 1938 there were 57 deaths of European children under the age of one year as compared with 66 in 1937.

The infant mortality rate for 1938 is 39 per thousand live births.

The number of still births amounted to 31, and these are not included in either births or deaths of infants stated above.

Tables giving the facts regarding infant mortality in the European community are set out below :—

European Infant Mortality Rates, 1921-1938

	Southern Rhodesia	Union of South Africa	England and Wales
1921-30 (average)	63	70	72
1930	45	67	60
1931	45	63	66
1932	55	69	65
1933	55	61	64
1934	45	61	59
1935	48	62.8	57
1936	49	59	59
1937	50	57	58
1938	39	52	(a)

(a) Not available

Cause of Infant Deaths, 1929-1938

Disease	Number of Deaths	Percentage of Total
Premature birth and diseases of early infancy	280	46.43
Bronchitis and pneumonia	74	12.27
Diarrhoea and enteritis	70	11.61
Malaria	55	9.12
Measles, whooping cough, diphtheria, dysentery	39	6.47
Various diseases not classified above	85	14.10
Totals	603	100.00

Deaths during different months, 1929-1938

	Number of Deaths	Percentage of Total
First month	309	51.24
Two months to six months	173	28.69
Six months to twelve months	121	20.07
Totals	603	100.00

Causes of Infant Deaths, 1938

Cause of Death	Number of Deaths
Whooping cough	2
Malaria	3
Glycosuria	1
Diseases of the thymus	1
Meningitis	1
Infantile convulsions	2
Broncho pneumonia	4
Pneumonia, not otherwise defined	4
Diarrhoea and enteritis	7
Other diseases of the kidneys and annexa	1
Congenital malformations	8
Congenital debility	2
Premature birth	15
Injury at birth	2
Other diseases peculiar to early infancy	2
Accidental mechanical suffocation	1
Cause of death unstated or ill-defined	1
Total	57

(5) MATERNAL MORTALITY

During 1938, three mothers died as a result of child-birth as compared with eight in 1936.

The maternal mortality rate for 1938 is 2.0 per thousand live births; a most encouraging improvement on previous rates.

European Maternal Mortality Rates, 1921-1938

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1921-30 (average)	5.4	5.1	4.1
1930	6.0	5.3	4.4
1931	5.1	4.7	4.1
1932	6.0	5.3	4.2
1933	6.3	4.8	4.5
1934	7.46	5.99	4.41
1935	7.47	4.73	3.94
1936	6.91	5.09	3.65
1937	6.12	4.4	3.3
1938	2.0	Not available	Not available

The England and Wales rates are based on total birth; that is, including still births, the South African and Rhodesian rates are based on live births.

European Maternal Deaths, 1928-1938

Cause of Death	Number of Deaths	Percentage of Total
Puerperal sepsis	23	31.95
Accidents of pregnancy	9	12.50
Other accidents of childbirth	2	2.78
Puerperal haemorrhage	8	11.11
Puerperal albuminuria and Toxaemia	14	19.44
Other causes	16	22.22
Totals	72	100.00

The provisions of the Nursing Homes Registration Act are now fully operative and maternity homes are now subjected to adequate supervision and inspection.

The following registrations have been made either by the Government or by the two larger municipalities :—

Maternity only	12
Maternity and General	4

Below is a short summary of the work carried out by the registered homes :—

	Maternity	Maternity and General
Patients admitted	1,078	1,256
Confinements	956	45
Deaths of adults	4	33
Deaths of infants	12	3
Live births	943	44
Still births	22	1
Miscarriages	18	19
Operations: Major	44	78
„ Minor	116	239

Of the total live births of European infants in 1938 (1,469) 987 or 67% took place in institutions under supervision and control.

CHAPTER II.—INFECTIOUS AND COMMUNICABLE DISEASES

The following table is compiled from the weekly bulletin of infectious diseases issued by the Department throughout the year. It is not pretended that it is a full list of cases which occurred even for the European population as certification remains lax :—

Infectious Diseases Reported during the Calendar Year, 1938

Diseases.	European		Native		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox	188	—	449	—	637	—
Measles	71	—	20	—	91	—
Whooping Cough	52	—	47	—	99	—
Typhoid	26	—	26	2	52	2
Mumps	146	—	48	—	194	—
Diphtheria	53	—	11	—	64	—
German Measles	17	—	1	—	18	—
Erysipelas	5	—	2	—	7	—
Cerebro-Spinal Meningitis	1	1	49	7	50	8
Scarlet Fever	20	—	—	—	20	—
Acute Anterior Poliomyelitis	2	1	—	—	2	1
Paratyphoid	—	—	—	—	—	—
Undulant or Malta Fever	—	—	—	—	1	—
Anthrax	—	—	10	4	10	4
Puerperal Septicaemia	1	—	—	—	1	—
Smallpox	2	—	1,863	9	1,865	9
Trypanosomiasis	—	—	—	—	—	—
Encephalitis Lethargia	1	—	—	—	1	—

(1) MALARIA AND BLACKWATER FEVER

In 1938, 38 deaths were registered as due to malaria and 19 due to blackwater fever, a total of 57 deaths as compared with 37 deaths in 1937.

Again the see-saw of malaria and blackwater mortality goes on, and when this is brought into alignment with 1,099 admissions for malaria to Government Hospitals resulting in 12 deaths and 26 admissions for blackwater fever, resulting in 9 deaths, one realises what a serious toll these diseases take in life and invalidity, particularly during the months of March, April and May at the time when the farming community especially wish to be working at full pressure and in good health so that the gathering and processing of their crops can be made under their own care and supervision.

During the year the statistical material in the Department's records with regard to malaria and blackwater fever have been studied in some detail, and several interesting facts emerge. The case mortality rate per cent. for the two diseases combined in cases admitted to hospital over a period from 1897-1938 averages 2.37 per cent.; that is, approximately 5 persons in every 200 die from these diseases after admission to hospital; and further, the case mortality rate has shown little tendency to improvement in recent years. Does this indicate that we have reached rock bottom with curative methods, and that the only hope of cutting down the number of deaths further is to reduce the number of cases which occur and require admission to hospital.

The effect of the two diseases on the different age groups throughout life and the two sexes has also been studied. Over the period 1919-1938, the malaria average death rate per 10,000 amounted in children under one year, to 56.5; in the group aged one year to under five years, 16.9; in the group five years to under ten years, 3.17; in the group ten years to under fifteen years, 1.17; after which there is a gradual rise in the death rate until in the group 75 years and over the rate is 45.8 per 10,000.

Over the same period and in similar age groups, the death rates per 10,000 in blackwater fever are 1.19, 1.00, 2.42, rising to 8.28 in the age group five to fifteen years, and maintaining a somewhat similar level to the older age groups.

Over the period 1921-1938, the malaria death rate per 10,000 for males is 6.51, and for females 5.91; the blackwater fever death rate per 10,000 for males 6.74, and for females 2.05.

Further, 70.6 per cent. of the malaria admissions to hospital over a long term of years were in the period January to May inclusive, and 71.4 per cent. of the blackwater fever admissions were in the period February to June inclusive.

To sum up, malaria kills in infancy and old age, blackwater fever in youth and middle age. Malaria kills males and females equally, blackwater fever kills three males to one female. Seventy-five per cent. of the malaria and blackwater fever admissions to hospitals are made in the first six months of the year.

(2) BILHARZIASIS

The work on this disease during the year has shown the serious nature of the problem and of its control. It can be said approximately that of the Europeans 6 per cent. are infected with urinary bilharziasis, and 2 per cent. with intestinal bilharziasis, and of natives 20 per cent. are infected with urinary bilharziasis and 12 per cent. with intestinal bilharziasis.

At the Agricultural Shows at Umtali, Salisbury and Bulawayo, the Department staged an exhibit on the disease in charge of Dr. Blair, assisted by Messrs. Alves and Myers. The exhibit at each centre stimulated great public interest, and no doubt played a major part in the present public concern about this infection. In addition, lecture demonstrations on this subject were given by members of the Department to various public bodies.

(3) SMALLPOX

This disease was dealt with rather fully in last year's reports, and the forecasts made there have been borne out in the year under review. One thousand eight hundred and sixty-five cases were reported, all in natives except two, and nine native deaths were reported, practically all in young children. The case mortality rate per cent. at 0.48 shows that the disease showed no change in virulence during the course of the epidemic. The case rate per 100,000 of the population amounted to 135, the highest rate ever recorded in this Colony. The disease was most prevalent in the large area south of and bounded by the Fort Victoria railway line and the outbreak was only brought under control when the supervision of the outbreak was placed under one official.

The British South Africa Police gave yeoman service in its control, and but for this supervision the outbreak in the Selukwe-Shabani-Chibi area would have smouldered on for months. In controlling individual outbreaks, every endeavour was made to meet the employer of labour in causing the least possible dislocation of work. As would be expected this policy caused criticisms from others nearby who had no smallpox in their particular farm.

In the financial year ending March 31st, 1939, 527,088 vaccinations were made so that on the face of it nearly half the population was protected in this period. Unfortunately, this is not so, as a great deal of the vaccination was not well done, and in some districts twice as many vaccinations were performed as there were people. In some districts, however, check surveys of the vaccination protection were made by members of this Department, and almost 100 per cent. protection has been achieved.

(4) DIPHTHERIA

The number of cases of diphtheria in Europeans is greater than last year—53 as compared with 33 in 1937. Despite the statement in the table at the commencement of this chapter that no deaths from diphtheria were notified, three European deaths from the disease were certified to the Registrar of Births and Deaths. This is yet another instance of the incompleteness of the infectious diseases notification. It cannot be said that much progress has been made in the immunisation of the European child population with the simple modern methods at our disposal. It would appear that the parents of this country are well content to acquiesce in this annual recurring child mortality and illness.

(5) LEPROSY

The following table shows the numbers dealt with at the four Leprosy Institutions in the Colony :—

LEPROSY—NUMBERS TREATED, ETC.

Hospital	On register at beginning of year			Admitted			Discharged or dead or deserted			On register at end of year			Total cases treated		
	1936	1937	1938	1936	1937	1938	1936	1937	1938	1936	1937	1938	1936	1937	1938
Ngomahuru	515	407	458	85	179	128	196	128	96	407	458	490	600	586	586
Mitemwa	326	283	284	341	141	155	384	140	136	283	284	377	667	424	439
Mnene	42	38	40	6	10	11	10	8	5	38	40	46	48	48	51
Mt. Selinda	—	5	7	—	3	3	—	1	*6	—	7	4	—	8	*10
Grand Totals	883	733	789	432	333	297	590	277	243	728	789	917	1,315	1,066	1,086

* Two on furlough

* Three deserted in 1937

Dr. Moiser, the Government Leprologist, reports as follows:—

Treatment.—The drug which has been found during the last few years to produce the best results is B.W. Moogrol, and is now practically the only drug in use in Southern Rhodesia. It is given twice a week, intramuscularly, in doses ranging from 5 to 10 cc., working up from an initial dose of 1 cc. It is given in six-week courses, followed by an interval of one or two weeks.

Intestinal parasites and other parasites are first carefully eliminated. Concomitant diseases, especially syphilis, when found clinically, are also treated first, before commencing specific treatment.

During the year, Messrs. Bayer, Ltd., donated a generous supply of their synthetic preparation of Vitamin B₁, called 'Betaxan,' for trial. Five cases, of neural type, were under prolonged treatment with this preparation, and although four of them showed improvement, I reported adversely, for their cases would surely have shown similar or even better improvement had they been treated with Moogrol. I do not consider that leprosy is a 'deficiency disease,' and did not expect any dramatic results from 'Betaxan.'

Results of Treatment.—A total of 155 (13.9 per cent.) cases were discharged from various hospitals with the disease arrested. I think this speaks well for Moogrol.

At Ngomahuru, of 376 patients who have received regular treatment with Moogrol throughout the year, 50 became arrested and were discharged, 69 were much improved, 252 were improved, 45 were stationary, and 10 became worse.

Research.—The means of transmission of the disease from one person to another is still an unknown factor. It is probable that there are means other than contagion and direct infection, and suspicion has fallen on cockroaches, bugs, ticks and other biting insects.

Cockroaches bite deeply, and leave a scar of the size of a large pin's head. So far, none of these scars, that have been under observation for two or three years, have developed into leprous lesions, but an insufficient time has elapsed to allow of any definite conclusions.

At present, we at Ngomahuru are investigating cockroaches. Many caught in the infectious compound have been found to contain acid-fast organisms in the intestine and egg sac. The morphology of these organisms is variable. In other cockroaches brought in from distant kraals, no acid-fast organisms have been found.

This investigation will require several years, and may prove to be of very great importance.

At Mtemwa 262 patients were examined for intestinal parasites and of this number 93, or 35.5 per cent. were found to have hookworm infection. Of 182 cases examined for Bilharzia, 53, or 27.4 per cent. positive cases were detected.

(6) OTHER INFECTIOUS DISEASES

The position with regard to the other infectious diseases shows little change. The minor infectious diseases of childhood have less cases than last year, erysipelas, typhoid fever, cerebro-spinal meningitis show little change. Ten native cases of anthrax occurred causing four deaths, the outbreak being due to the eating of the carcass of an animal which died from the disease.

CHAPTER III

(1) NATIVE DISPENSARIES AND CLINICS

The total number of Government clinics in the Colony increased during the year from 32 to 46. Of these 31 are in the native reserves and the remainder are in rural areas where large numbers of natives are employed. Opposite is a small map to indicate the number and positions of the various clinics.

The number of inpatients treated in Government clinics rose last year to 26,135, an increase 4,844 upon the previous year; the number of outpatients increased by 7,863 to 53,955 and the number of outpatient treatments increased from 138,225 to 186,867. (No figures are available concerning outpatient treatments in respect of the Ndanga Unit.)

During the coming year the programme of clinic building will be proceeded with and further clinics erected both in the Reserve areas and in the rural districts. The success of the clinic system has been phenomenal, indeed at times embarrassing, and it is now obvious that the native people were ready and ripe for the adoption of European medical services modified to their own manner of life. During the course of the year many applications have reached us from native communities appealing to us to build clinics in their areas. This is further evidence, if any were required, to demonstrate how highly the services provided by the clinics are valued by the native people.

Efficient as these institutions are, however, their services in many cases are at the moment being restricted by the lack of all-weather roads. During the last wet season Government Medical Officers were unable to reach some clinics for as long a period as two months. Until some arrangement is arrived at whereby the roads from the Government Medical Officer station to the clinics can be maintained in reasonable condition these hospitals will not operate as efficiently as they could do.

Another extension of the clinic service provided in several districts during the last year was the sending out of medical orderlies attached to the clinic, to visit the various kraals in the area. These orderlies, in addition to encouraging the sick to come to the clinic for treatment, give lectures to the native villagers on matters of hygiene and public health. It is our intention to develop this service, and with the assistance of the Native Affairs Department to establish at every chief's kraal a clinic which will not only act as a centre for the treatment of the sick, but as a centre for the dissemination of elementary public health education.

Other innovations have been the opening of a clinic at Gokwe, which is visited periodically by a Government Medical Officer by aeroplane, and the training of long term prisoners at the Salisbury Gaol to make doors, windows, and equipment for the clinics. This latter innovation serves the dual purpose of reducing the constructional and equipping costs of the clinics, and at the same time provides the prisoners with a means of rehabilitating themselves when they are released from prison.

A widespread epidemic of smallpox, which arose in the Selukwe Native Reserve, gave local medical officers opportunities for coming into close contact with the Reserve native and resulted in many recommendations for the improvement of public health services. One of the results of these recommendations will be the appointment in the coming year of a sanitary officer attached to the Public Health Department, whose main functions will be the routine vaccination of the Reserve population.

As a propaganda measure a model native clinic is being constructed for exhibition at the annual Shows held in the bigger towns in the Colony.

The following are the consolidated figures for native patients treated during the year, 1938 :—

Type of Service	In- patients	Out- patients	Total
Attached Native Hospitals (13)	19,731	48,479	68,210
Detached Native Clinics (36)	16,202	42,298	58,500
The Ndanga Group (10)	9,933	11,657	21,590
Mission Clinics and Dispensaries (33)	10,680	65,438	76,118
Total	56,546	167,872	224,418

The following is a list of the institutions either maintained by the Government or in receipt of grants, which afford medical treatment for natives. Those which afford facilities for the treatment of venereal diseases are printed in italics :—

Native Hospitals (13)

Salisbury	<i>Gatooma V.D. Clinic</i>
Bulawayo	<i>Fort Victoria</i>
Untali	<i>Sinoia</i>
Gwelo	<i>Gwanda</i>
Gatooma	<i>Enkeldoorn</i>
Bindura	<i>Shamva</i>
	<i>Rusapi</i>

Native Dispensaries (46)

<i>Ndanga</i>	<i>Filabusi</i>	<i>Mrewa</i>
<i>Dispensary "A"</i>	<i>Gwaai Siding</i>	<i>Murabghi</i>
<i>Dispensary "B"</i>	<i>Gokwe</i>	<i>Odzi</i>
<i>Dispensary "C"</i>	<i>Hartley</i>	<i>Plumtree</i>
<i>Bikita</i>	<i>Inyanga</i>	<i>Selukwe</i>
<i>Chichidza</i>	<i>Inyati</i>	<i>Sipolilo</i>
<i>Matibi</i>	<i>Jena</i>	<i>T'jolotjo</i>
<i>Gutu</i>	<i>Kezi</i>	<i>Tzonzozo</i>
<i>Chingombe</i>	<i>Kutama</i>	<i>Umvuma</i>
<i>Dispensary "G"</i>	<i>Makumbi</i>	<i>Lukosi</i>
<i>Chibi</i>	<i>Marandellas</i>	<i>Wedza</i>
<i>Chilimanzi</i>	<i>Matobo</i>	<i>Chiduku</i>
<i>Chipinga</i>	<i>Mtoko</i>	<i>Fort Usher</i>
<i>Chinomwe</i>	<i>Miami</i>	<i>Gatooma</i>
<i>Concession</i>	<i>Mt. Darwin</i>	<i>Butje</i>
	<i>Mphoengs</i>	

Some of the above were opened at the end of 1938 and the patients treated do not figure in the tables at the end of the report.

Native Dispensaries opening early in 1939 (3).—

Shangani	Chiweshi	Umvukwes
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Native Dispensaries asked for on the Estimates (6).—

Belingwe	Darwendale	Essexvale
Buhera	Mtoko	Norton

In addition many of the existing clinics will be enlarged, and in some cases additional sub-clinics will be added.

Apart from the above there are 33 missions performing medical work among natives. Of these 17 provide treatment for venereal diseases.

(2) NATIVE LABOUR ON MINES

Comparative Statement of Mortality, 1934-1938

	Twelve Months Ended November				
	1934	1935	1936	1937	1938
Average number employed	61,101	75,173	83,619	90,278	88,370
<i>Disease :</i>					
Number of deaths	573	851	829	827	894
Death rate per mille per annum	9.38	11.32	9.91	9.16	10.12
<i>Accidents :</i>					
Number of deaths	140	194	180	175	154
Death rate per mille per annum	2.29	2.58	2.15	1.94	1.74
<i>All Causes :</i>					
Number of deaths	713	1,045	1,009	1,002	1,048
Death rate per mille per annum	11.67	13.90	12.06	11.10	11.86

Rates of Death from Disease

	Twelve Months Ended November				
	1934	1935	1936	1937	1938
Death Rate per 1,000 Employed					
Pneumonia	4.21	5.41	5.03	4.70	5.13
Other diseases	5.17	5.91	4.88	4.46	4.99
Total disease death rate	9.38	11.32	9.91	9.16	10.12

Sickness, Deaths and Death Rates

Disease	Twelve Months Ended November, 1938		
	Number of cases	Number of deaths	Death rate per mille per annum
Malaria	4,608	45	0.51
Scurvy	358	8	0.09
Syphilis	1,482	34	0.38
Pneumonia	2,215	453	5.13
Phthisis (consumption)	58	42	0.48
Other diseases of chest	871	21	0.24
Dysentery and diarrhoea	900	8	0.09
Other intestinal diseases	126	39	0.44
Heart disease	52	36	0.41
Debility	226	8	0.09
Influenza	8,116	30	0.34
Other diseases	3,067	170	1.92
Minor ailments	19,576	—	—
Totals	41,655	894	10.12

Accidents and Injuries:

Major	423	154	1.74
Minor	13,795	—	—
Totals: All cases	55,873	1,048	11.86

While the accident rate shows a steady decline despite deeper and therefore potentially more dangerous mining, the death rate from disease has risen by 67 more deaths in an average labour force whose personnel is 900 less than in 1937. Pneumonia still claims its terrible toll of over 50 per cent. of the deaths and it would seem that little heed is paid to putting into force the simple measures advocated in previous years' reports. During the year in question a new drug has been widely and successfully used elsewhere in the treatment of this disease, but from our figures it would appear that its use in respect of the treatment of mine natives has so far not been very extensive. The case mortality rate per cent. in this disease stands steady at the alarming figure of 20.

On some of the larger mines in Southern Rhodesia this drug has been administered with great success, and the dictates of common humanity would suggest that every mine native suffering from pneumonia should have the opportunity of benefiting from its use.

The scurvy position goes from bad to worse and 358 cases of scurvy with eight deaths makes mournful reading. This disease is unfortunately also found in native farm labourers now to a greater extent than was ever known before. It is possible that this rise in the scurvy figures is an index of the increased pressure on native labourers on account of the shortage of supply and that as a result of this pressure there ensues a rapid breakdown of the Vitamin C reserves. Theories of causation of labour shortage are legion but there is little doubt that at the back of it all loom large the spectres of bad housing and bad feeding.

(3) SCHOOLS MEDICAL SERVICE

The Schools Medical Officers reports as follows:—

Routine inspections were carried out in all Government and Government Aided European and Coloured and Indian Schools in the Colony this year by the two Schools' Medical Officers.

The number of schools at which routine inspections were made was 132, while special investigations were made in 36 schools. The number of children examined was:—

European, 5,775; Coloured and Indian, 656; a total of 6,431 children of the three races.

The total mileage performed on duty by both Medical Officers amounted to approximately 16,000. This means that an average of $2\frac{1}{2}$ miles was travelled for each child examined, and an average of 95.23 miles per school inspected, at a total cost to the Public Health Department, at $4\frac{3}{4}$ d. a mile, of £316 13s. 4d.

At the same time as routine inspection of school-children a report was made on the environmental conditions in which they are educated. Such a report was made separately on each school and copies sent to the Education Department.

Parents.—Parents were sent written invitations to be present at inspections. Parents responded to these invitations for 1,315 European inspections (22.77 per cent.) and for 43 Coloured and Indian (6.56 per cent.). This is a slightly better attendance than last year. Only one note was received this year intimating refusal for a schoolchild to be examined. Many parents, who were unable to attend, sent notes giving details of previous health of their children and drawing attention to special defects for which medical advice was desired.

Vaccinations.—The numbers of unvaccinated children found at medical inspections were 555 European (9.61 per cent.) and 82 Coloured and Indian (12.5 per cent.) this is less than half the proportion found last year, and the great reduction can be attributed to two factors:—

- (1) The large number of children examined for the first time in 1937.
- (2) The smallpox epidemic of 1938.

Of these unvaccinated children, 334 Europeans and 68 Coloured were vaccinated by the Schools Medical Officers. A large number of children were also vaccinated who are not included in the number examined.

Statistics.—Owing to the fact that in 1937 routine inspections were made in all schools, it was possible this year to separate the inspected children into two main groups for statistical purposes—

- (1) the “Routine” inspections, i.e., the first 5 age groups totalled together. These are normally inspected for any and every defect, irrespective of whether they have shown any previous defects or not.
- (2) The “Re-examinations” (Group 6) and “Specials” (Group 7) totalled together. These children have been referred for special inspection for some particular defect, in the case of Group 6, by the Medical Officer who examined them last year, and in the case of Group 7, by their parent or teacher.

It will be obvious that by reason of age and other factors it is necessary to separate the children in this respect into two groups, otherwise the figures given would be subject to wide fluctuation from chance sampling. The figures for the “Routine” are comparable (within certain limits) with those given for another group of “Routines” in, for example, England or a previous report for Southern Rhodesia, because it is a standardised group, whereas the “Re-examination” and “Special” Group figures are not comparable except in special circumstances.

Even under these circumstances, too much importance must not be attached to figures alone unless definitely stated in the text of this report.

Common sense, for instance, will show that an incidence of 100 per cent. of a certain defect in an aided farm school containing two children is of minor importance compared to a 50 per cent. incidence of the same defect in a school containing 200 children. This is an extreme case of course, but many other comparisons are not so obviously fallacious and in these a special statistical test must be applied first. This has been done in all doubtful cases appearing in this report, so it may be taken that the factor of chance sampling has been eliminated for all practical purposes.

Even so, no definite conclusion should be arrived at on statistical evidence alone without taking into account *all* the evidence bearing on the case.

Following Up.—This year, 573 European children and 21 Coloured and Indian, for whom treatment was recommended last year, were re-examined and a note made as to whether the recommendation had been carried out or not.

In the case of the Europeans, 426 recommendations (74.4 per cent.) had been carried out and 147 (25.6 per cent.) not carried out. In the case of the

Coloured and Indians, 14 recommendations (66.7 per cent.) had been carried out and 7 (33.3 per cent.) not carried out. Considering the absence of school nurses to follow these cases up to see that they obtain treatment and the difficulty and expense in many cases of obtaining treatment, this result is highly gratifying. A great deal of follow-up work is done unofficially by teachers who are interested in their pupil's health, realising that an unhealthy pupil cannot derive as much benefit from education as he would if he were healthy.

Nutrition.—The proportions of children in the various categories—A “Excellent”), B (“Normal”), C (“Slightly sub-normal”) and D (“Bad”) show significant changes compared with last year among both European and Coloured children. These changes should not be regarded as showing a definite lowering of the standard of nutrition since last year. They are due to two main causes:—

- (1) The number of “Entrants” examined last year was about 50 per cent. more than this year and these included many children who were of greater age than is included in this group normally when medical inspection has been carried out regularly. It is usual to find that the standard of nutrition improves in direct proportion to the age of the group examined.
- (2) A different method of estimating the nutritional standard was adopted this year. No infallible method has yet been invented. The standards adopted in England are admitted to be arbitrary and subject to wide variation from personal factors. The same applies to Southern Rhodesian figures. These serve only as a rough index which, on account of the absence of any better method of estimating nutrition than the present ones, must not be taken too literally.

Postural Defects.—The incidence among Europeans this year (6.27 per cent.) shows no significant change compared to last year (5.28 per cent.). The incidence (12.48 per cent.) in the largest boys' schools in the country grouped together was approximately three times that found among boys in the smaller mixed schools (4.99 per cent.) (See Table 1.). Among girls the incidence was more uniform, being about the same throughout as that among the boys in the smaller schools (4.99 per cent.). Among the largest boys' schools there were four exceptions to this general rule.

In three cases, the efficiency of physical training instruction was above average, and in the other case, the hours of work were divided into shorter periods in spite of the total aggregate per week being longer than in most Southern Rhodesian schools.

These defects are due to overstrain, but this does not mean that all Southern Rhodesian school-children are submitted to abnormal stress in the process of education. Certain children are congenitally weak, others become temporarily weak through illness or during periods of increased bodily growth, for example puberty.

Children in this weakened state lose the normal unconscious muscular tone which should resist the action of gravity and maintain a good posture. Under these circumstances, such children are unable to maintain prolonged effort, such as long period of standing or sitting or walking, without sagging of their anti-gravity muscles. “Overstrain” as a term should not therefore be misunderstood, because in this case prolonged sitting is *probably* the main cause of overstrain.

These conditions are best remedied by removing as far as possible the cause, that is to say, by shortening the periods of sitting, standing or walking, and substituting periods of rest on the back, with hands clasped behind the head, and a pillow between the shoulder-blades and another under the knees, but none under the head. Having thus rested the antigravity muscles, they should be educated to adopt perfect tone. This is where physical training is important. It is no use to rely on games and sports and ordinary “physical jerks” to cure or prevent these defects, indeed much harm may be caused through such action. Special muscles are involved in this breakdown while their opposing muscles have become abnormally strong through the upset of balance. This balance cannot be restored by general toning of the whole body, the only remedy is to concentrate all attention on the particular group of muscles affected, this is where physical training must be scientific and methodical.

TABLE I.

Postural Defects.—Comparative Table of Incidence.

Boys in—	Entrants	Born in				Total
		1929	1926	1924	1922	
<i>A : 15 Largest Boys' Schools</i>						
Number examined	312	204	290	326	303	1,435
Number showing Postural Defects	23	28	27	52	48	178
Percentage	7.37	13.73	9.31	15.95	15.84	12.48
<i>B : 68 Mixed Smaller Schools</i>						
Number examined	245	161	147	103	26	682
Number showing Postural Defects	8	5	6	12	3	34
Percentage	3.27	3.11	4.08	11.65	11.53	4.99
<i>C : Total—Above Schools</i>						
Number examined	557	365	437	429	329	2,117
Number showing Postural Defects	31	33	33	64	51	212
Percentage	5.57	9.04	7.55	14.92	15.50	10.00
<i>D : Selected 4 of above 15 largest Boys' Schools in which incidence is lowest</i>						
Number examined	107	35	57	53	59	311
Number showing Postural Defects	7	1	1	3	3	15
Percentage	6.53	2.86	1.75	5.66	5.08	4.82

Can these Defects be Prevented?—As already mentioned, overstrain is the cause of these defects. There are two ways of tackling this, as exemplified by the four large boys' schools referred to above in which postural defects are relatively negligible in incidence or severity. In one of these, the cause of overstrain was absent owing to the shorter periods of alternating work and rest, thus eliminating prolonged effort. In the other three the boys had been toned up by special exercises to withstand the strain of prolonged effort which was therefore no longer a form of "overstrain."

Physical training now takes a definite part in the schools curricula. What criterion can be laid down for its results? Surely the production of physical efficiency. The main strain of present day education appears to affect mainly those muscles involved in resisting gravity and maintaining good posture. Once this function is lost, the general bodily health suffers more or less and physical inefficiency results. It is logical therefore to suggest that all physical training instruction in the schools should be based on educating this imperilled function of postural tone. If this were done, and special attention were directed to those children who have or who are predisposed to postural defects, then it can be predicted safely that the incidence of these defects would become negligible.

Mental Deficiency.—During this year a special effort was made to ascertain the number of mentally defective children in the schools. At each school the school principal was asked to furnish a list of children whom he considered to be three or more years retarded in school work or whom he considered abnormal for any other reason.

These children were tested by means of the Binet Simon test which is a standardised test consisting of a number of questions relating to everyday life. The general aim of the test is to find out what the child can do with the information he may have acquired rather than to find out what information he has. It measures the child's ability to make use of experience and so is independent of chance or schooling or opportunity, but seems rather to provide an indication of some inherited quality which remains stable and permanent throughout life.

The number of children tested was 220, and they were found to fall into the following divisions:—

Intelligence quotient below 50	:	13	Ineducable.
„ „ 50-59	:	29	Low-grade feeble minded.
„ „ 60-69	:	51	High-grade feeble-minded.
„ „ 70-78	:	67	Border area.
„ „ 79-85	:	28	Dull and backward.
„ „ 86-90	:	14	
„ „ over 90	:	18	Normal.

It is generally assumed that children with an Intelligence Quotient below 70 are unable to benefit by the education provided in an ordinary school, and there are at present 93 of these children at school.

The border area cases are most conveniently classed with high-grade feeble-minded which brings the number requiring some sort of special education up to 160.

The figures obtained show that teachers experience some difficulty in picking out defective children without the aid of some standardised test. Most of the children who were found to have normal intelligence had behaviour problems or special difficulties such as illness or erratic school attendance which differentiated them from other children.

In addition to this investigation of backward children a group of 15 bright children was tested. Ten of these were children who obtained the highest place in the group test which was used in 1937, and their intelligence quotients according to the Binet Simon scale gave results varying from 112 to 152, 5 of them being over 135.

During the year the School Medical Department again co-operated with the Education Department in carrying out a group mental test on 1,500 children of 12+ years, with the idea of deciding what type of secondary school would be most suitable for them. The test used for this purpose was Group Test 34, published by the National Institute of Industrial Psychology.

Tonsils and Adenoids.—Among Europeans, only about one in every 5 cases showing enlarged tonsils or adenoids was advised to have these removed. Medical opinion is now tending to favour conservative treatment rather than operative, when possible.

Teeth.—From the number of children suffering from gross dental caries (i.e. caries visible without the aid of a probe and mirror, therefore probably too advanced for treatment by filling) there appears to be a marked tendency towards neglecting conservative dental treatment.

Defective Vision.—Treatment of this defect is now undertaken by the Schools Medical Officers. Portable apparatus is taken round while inspecting the various schools, and those children suffering from defective vision, whose parents give consent, are examined by retinoscopy with a mydriatic, and glasses prescribed if necessary.

Children, whose parents submit the necessary certificate of indigence, are examined free of charge and glasses are supplied at Government's expense. Others are examined for a fee of 5s. payable to the Schools Revenue Officer, and glasses may be obtained by these at a reduced rate of 25s.

This scheme has killed two birds with one stone. It obviates the necessity for the Government to incur heavy expense in securing treatment for the children of indigent parents through the cost of travelling, specialist's fees and possibly hotel charges. It has also made it feasible for the parent of moderate means to obtain treatment for his child at reasonable cost.

A few children with grossly defective vision are not allowed by their parents to wear glasses. This results not only in putting the child at a disadvantage in school work but in ruining the vision permanently, especially in myopia which is the commonest cause of defective vision in the schools of this country. This number is counteracted by those who wear glasses unnecessarily. Many children in the schools wear glasses which are very nearly plain "window panes," it is probable that any benefit therefrom is entirely psychological.

Treatment of Indigent Persons, Police and other Government Employees.—The scheme for refraction and prescription of spectacles is not confined to school-children but is extended to other sections of the community as mentioned above. Not only is examination and treatment performed, but when the conditions of employment are considered likely to predispose to eyestrain, an investigation and report is made on these too with a view to preventing inefficiency. The Bulawayo Automatic Telephone Exchange was inspected from this point of view as the result of a complaint by an employee.

Since the commencement of the scheme, the following examinations and treatments have been carried out by this Department:—

(a) *School-children*—

Refraction with mydriatic	62
Glasses prescribed	28

(b) *Indigent persons, Police and other Government Employees*—

Refraction performed	21
Glasses prescribed	13

A noticeable feature of these figures is the small proportion of those examined who require spectacles. In the case of those adults for whom glasses were not prescribed, the defective vision was found to be due to some cause which could not be remedied by glasses, e.g. cataract choroiditis, etc., and others complained of symptoms which were attributed to minor errors of refraction, but which on examination were found to be due to other causes.

In the case of children, a larger proportion than among adults complained of symptoms which they attributed to defective vision wrongly, and those suffering from mild degrees of hypermetropia were discouraged from wearing glasses owing to the tendency of this complaint to improve without glasses. Moreover, most of those suffering from squint were found to have no error of refraction, in which case treatment by fusion training, occlusion, or operation is required.

SPECIAL INVESTIGATIONS:

(A) *Parasitic Survey in the Schools.*

In consequence of recommendations from this Department, a new laboratory technician has been appointed to help in routine investigation of school-children for parasitic infection (i.e. malaria, bilharzia, hookworm, etc.).

The ideal in view is to do a routine laboratory test on every child examined at routine inspection, i.e., about 6,000 children per year. Pending extensions of the present Laboratory, it was decided this year to confine these tests to—

(1) All those children who entered for the Selective-Group Intelligence Test, whose ages are about 12, in addition to a school in which an investigation was carried out, including the testing of 223 children selected at random.

(2) All those children who, as a result of medical examination were considered to need such a test, e.g., those with enlarged spleens, severe malnutrition or symptoms suggestive of parasitic infestation.

The first group (see Table 6) may be considered therefore as a "sample taken at random," while the second group (see Table 7) is one in which

parasitic infection would be expected to show a higher incidence than the first group, since it consists of selected cases. The incidence in the random sample group is therefore a better indication of the true incidence of latent parasitic infection among the school-children as a whole group.

Difficulties in Conducting Parasitic Survey.

It may seem extraordinary to those who do not come into intimate contact with the school-children and parents in this country, but the greatest difficulty consists in procuring specimens. It will be seen from the figures given that although 1,828 European and 66 Coloured children were supplied with specimen tubes, and were given minute directions how to use these, and difficulties of collection were largely obviated by the co-operation of the teachers, and no cost in material or money was incurred by parents, yet 21.81 per cent. of specimen tubes were not returned at all. This is incidentally a dead loss to this Department in both time and money. Reasons for failure to return specimens were occasionally given, for example—"my children are neither beasts nor natives," but in most cases no reply was received. This form of passive obstruction will paralyse any attempt to exterminate parasitic diseases, for it must be obvious that before any organised campaign can be introduced it is necessary to know the incidence and geographical distribution first. Owing to the irregular manner in which specimens were received at this survey, many children sending one specimen of either urine or stool instead of both as requested, it is impossible to give the true incidence, because parasites found in stool are as frequent as those found in urine, so the supply of one specimen only is no criterion of the absence of parasitic infestation. For this reason, the incidence of infections discovered in (1) urine and (2) stool are given separately. For the same reason, the geographical chart of incidence has to be recorded as *per specimen of urine or stool instead of per child*.

Another point to be borne in mind is that the incidence per hundred children is lower than the true incidence would be if all these children had been tested thoroughly.

Blood-smears: A blood smear was obtained from most of the 1,894 children it was hoped to test, together with an estimation of haemoglobin index by Tallqvist's method in about half this number. This is a rough and ready method with an error of about ± 10 per cent., but convenient for the purpose owing to the ease and rapidity with which it can be conducted. The blood-smear was examined for malaria parasites, and an estimation was made of the eosinophile cell percentage.

Malaria: Only 3 blood-smears, 2 from European boys with enlarged spleen and another from a Coloured boy with enlarged spleen, were positive for *Plasmodium falciparum*. In view of the absence of malaria parasites in the peripheral blood between attacks, a negative report on the blood-smear is of no value in eliminating malaria. Since school-children examined at routine inspections are most unlikely to be suffering from an attack of malaria at the time, it follows that routine blood-smears from this point of view are valueless. They are likely to be positive only if taken during an attack, or possibly other times which experiment alone can determine. Clinical signs such as enlarged spleen, sallow ieteric complexion, anaemia or a history of recurrent attacks form at present the only means of estimating the incidence of malaria among school-children. Apart from the presence of enlarged spleen, this evidence is too arbitrary to be put in the form of round figures, nevertheless, there is no doubt that malaria is the most prevalent and harmful of any defect among school-children.

Eosinophilia: It is generally accepted that a high percentage of eosinophile cells in a blood-smear is indicative of allergic conditions or of certain stages of helminthic infestation. However, it is by no means certain what is the highest eosinophile percentage that is consistent with normal health. Various observers have put this figure at 5 per cent. Therefore, in the absence of a positive finding in the urine or stool in a single examination thereof (at which a positive finding is likely only in moderate to heavy infections), it was thought that an eosinophile cell count would provide useful presumptive evidence to justify further examination of urine and stool.

Owing to lack of staff in the Laboratory, it has not been possible this year to re-test all those cases whose urine or stool specimens were either not submitted or were found negative at a single examination, and who showed at the same time a relatively high eosinophile percentage, but these have been noted for further testing when facilities are provided. It is impossible to say therefore whether this method has been successful, or to say definitely how much helminthic infestation exists in the group of cases in which no ova were detected at a single examination. For comparison's sake, three tables are attached (Tables 2, 3, and 4). Table 2 compares the eosinophile percentages of all children whose blood-smears were examined in various districts.

Table 3 compares the eosinophile percentage among three groups of children —(1) all children whose blood-smears were examined for eosinophile percentage. (2) all children in whose specimens of urine or stool the ova of bilharzia were found either in the presence or absence of the ova of other helminths, (3) all children in whose specimens of urine or stool the ova of helminths other than bilharzia ova were detected.

It will be noticed that the mean percentage for proved cases of bilharzia is considerably above the mean for the whole group of children examined, so too is the mean for the Charter District. Table 4 shows the comparative percentage of eosinophile cells in proved cases of *B. haematobium* and *B. mansoni*. Known cases of mixed infections were left out of this table, but it is not by any means certain that the cases referred to were pure, unmixed infections of either *B. haematobium* or *B. mansoni*, and some of these cases were definitely harbouring other parasites such as hookworm, tapeworm, and threadworm.

Conclusions: It is too early yet to estimate the value of this test.

Table 2.

Eosinophile Percentages by Districts.

Percentage Eosinophile.	Districts.					
	Salisbury.	Eastern Border.	Midlands.	Charter.	Bulawayo.	Total.
0—4	416	91	90	63	356	1,016
5—9	133	67	44	37	157	438
10—14	50	21	24	18	37	150
15—19	15	8	11	7	13	54
20—24	8	4	4	9	13	38
25—29	5	1	2	3	3	14
30—34	6	1	—	4	3	14
35—39	1	—	2	1	—	4
40—44	2	—	—	1	—	3
45—49	—	1	—	—	2	3
50—54	1	—	—	1	—	2
55—59	1	—	—	—	—	1
60—64	—	—	—	1	—	1
65—69	—	—	—	—	—	—
70—74	—	—	—	—	—	—
75—79	—	—	—	—	—	—
80—84	—	—	—	—	—	—
85—89	—	—	—	1	—	1
Total	638	194	177	146	584	1,739
Mean	5.25	6.36	6.66	9.64	5.19	5.87
S.D.	—	—	—	—	—	6.93

Table 3.

Eosinophile Percentage.—Influence of Parasitic Infection.

Group A : All children whose blood-smears were examined for Eosinophile percentage.

Group B : All children in whose specimen of urine or stool the ova of bilharzia were found, either in the presence or absence of the ova of other helminths.

Group C : All children in whose specimen of urine or stool the ova of helminths other than bilharzia were detected.

Percentage Eosinophile	Group A	Group B	Group C
0— 4	1,016	26	42
5— 9	438	43	22
10—14	150	20	6
15—19	54	15	2
20—24	38	10	3
25—29	14	5	—
30—34	14	6	—
35—39	4	1	—
40—44	3	—	—
45—49	3	1	1
50—54	2	—	—
55—59	1	—	—
60—64	1	—	—
65—69	—	—	—
70—74	—	—	—
75—79	—	—	—
80—84	—	—	—
85—89	1	—	—
Total	1,739	127	76
Mean	5.87	11.65	6.013
S.D.	6.93	9.05	6.885

Table 4.

Eosinophilia for B. Haematobium and B. Mansoni Compared.

Group	B haematobium	B.mansoni
Per cent.	No.	No.
0— 4	11	13
5— 9	28	11
10—14	12	6
15—19	9	5
20—24	6	3
25—29	3	1
30—34	6	—
35—39	—	1
40—44	—	—
45—49	1	—
Total	76	40
Mean	12.72	9.75
S.D.	9.52	8.14

There is no doubt that bilharziasis, at fairly early stages of the disease, is associated with a higher percentage than 5. Those cases of proved bilharzia showing percentages lower than 5 were possibly late cases in which a degree of tolerance had been reached between host and parasite, while those cases, so far unproved, which nevertheless show high percentages, may be found at future examinations to have been suffering from early stages of the disease. The other helminths detected in this investigation, do not appear to produce the eosinophile cellular reaction which bilharzia does and this is only what one might infer from the fact that the bilharzia parasite lives continually in the bloodstream while the other helminths mentioned do not, except for a short period of their parasitic existence—(e.g. hookworm). The influence of allergic conditions on the eosinophile percentage is probably negligible in comparison to that produced by bilharzia in proportion to the numbers examined and this complication can be estimated by the case history.

It is difficult to say whether any other factors may complicate the diagnosis in this country. It is possible that excessive doses of foreign protein introduced from time to time into the body by mosquitoes, ticks, lice, bed-bugs and fleas may raise the percentage temporarily in certain individuals, but no evidence is available on this aspect of the subject.

In view of the considerable number of children examined in which a high percentage was recorded it seems essential to investigate further before coming to more definite conclusions.

Haemoglobin Index: 941 children were examined while taking blood-smears. A glance at Table 5 will show the distribution of these cases in their indices. The mean index for this group was 67.7 (S.D. ± 8.7). Allowing for an error in estimation of ± 10 , this figure could be given as 77.7 (S.D. ± 8.7) on the generous side. The standard of anaemia accepted by Davidson and his co-workers (1935) among the school-children from the poorer districts of Scotland was an index of less than 84. From the above figures it would appear that anaemia must be the rule rather than the exception among Southern Rhodesian school-children. Since this is admittedly a most inaccurate method of estimation, the figures given should not be accepted without confirmation by a more detailed investigation.

The comparative figures for those suffering from hookworm infection and those with enlarged spleens whose indices were estimated, show that chronic malaria is associated with a lower index, but the numbers given are not sufficient to prove the significance of this, although it serves as a pointer to the commonest cause of anaemia.

Bilharzia: Hitherto all bilharzia surveys in schools have been conducted by examination of urine alone.

Ova of *Bilharzia mansoni* are very seldom found in urine, while those of *Bilharzia haematobium* are fairly frequently found in stool, although much more commonly in urine. For this reason, and in order to ascertain the presence of other parasites, it was considered necessary in this survey to examine specimens of both urine and stool in every case. A glance at the figures will show that this procedure has been justified, because a considerable number of bilharzia cases were detected in this survey from examination of stool, apart from all the other parasites detected therein. Owing to the irregular manner in which some children supplied urine only and others stool only when they had been asked to supply both, it is probable that a large number of infected cases have been missed at this survey.

Table 5.

Haemoglobin Index: (Tallqvist's Scale).

Hg. Per cent.	40	50	60	70	80	90	100	Total	Mean Index	S.D.
All children tested	1	75	226	504	111	20	4	941	67.7	8.7
Hookworm cases	—	2	11	14	1	1	—	29	65.9	8.1
Cases with enlarged spleens	1	36	46	41	8	—	1	133	61.73	9.7

Table 6.
Parasitic Survey in Schools.

Random Sample Group	1,514 children	(all European)
Urine: Specimens of urine tested	1,229	
Specimens of urine not returned	285	(18.81%)
<i>B. haematobium</i> present	80	(6.67%)
<i>B. mansoni</i> present	1	
<i>B. mattheei</i> present	1	
<i>E. vermicularis</i> present	5	(.41%)
Total parasites	87	(7.08%)
<hr/>		
Stool: Specimens of stool tested	1,155	
Specimens of stool not returned	359	(23.7%)
<i>B. mansoni</i> present	40	4.24%)
<i>B. haematobium</i> present	8	
<i>B. mattheei</i> present	1	
Hookworm present	40	6.92%)
<i>E. vermicularis</i> present	20	
<i>Taenia</i> spp. present	8	
<i>Hymenolepis nana</i> present	3	
<i>A. lumbricoides</i> present	2	
<i>T. trichiura</i> present	11	134 (11.16%)
<i>Giardia lamblia</i> present	1	
Total parasites	134	(11.16%)

Table 7.
Parasitic Survey in Schools.

Special Cases: Europeans	314
Coloured	66
(A) Europeans:	
Urine: Specimens of urine tested	248
Specimens of urine not returned	66 (21.02%)
<i>B. haematobium</i> present	25 (10.08%)
Stool: Specimens of stool tested	235
Specimens of stool not returned	79 (25.16%)
<i>B. mansoni</i> present	22
<i>B. haematobium</i> present	1
Hookworm present	9
<i>E. vermicularis</i> present	7
<i>H. nana</i> present	4
<i>T. trichiura</i> present	3
(B) Coloured:	
Urine: Specimens of urine tested	47
Specimens of urine not returned	19 (28.79%)
<i>B. haematobium</i> present	8 (17.02%)
Stool: Specimens of stool tested	48
Specimens of stool not returned	18 (27.28%)
<i>H. nana</i> present	1

Table 8.
Comparison of Districts for Incidence of Bilharzia.

District	Urine			Stool		
	No. of specimens examined	No. positive for bilharzia	% Positive.	No. of specimens examined	No. positive for bilharzia	% Positive.
Salisbury	442	25	5.66	373	22	5.9
Eastern Border	134	18	13.44	113	18	15.93
Midlands	157	15	9.55	174	15	8.62
Charter	119	21	17.65	103	nil	nil
Bulawayo	672	36	5.36	675	17	2.52
Total	1,524	115	7.55	1,438	72	5.01

TABLE 9.

FINDINGS OF MEDICAL INSPECTION, 1938.

Schools: All European (5,775).	Group 1. Entrants	Children born in				Total.	Per Cent.	Group 6. Re-examinations.	Group 7. Specials.	Total Groups 6 & 7.	Per Cent.
		Group 2.	Group 3.	Group 4.	Group 5.						
		1929.	1926.	1924.	1922.						
<i>Total Number Examined</i>	1,485	860	879	825	562	4,611		824	340	1,164	
<i>Defects found</i>											
<i>Skin Diseases</i>	70	25	31	30	26	192	4.16	23	14	37	3.18
<i>Defective Vision:</i>											
(1) Requiring Treatment	24	27	43	38	27	159	3.45	24	35	59	5.07
(2) For Observation	14	12	12	14	17	69	1.50	12	3	15	1.29
(3) Treatment Obtained	26	18	45	48	65	202	4.38	23	33	56	4.81
Squint	17	11	8	5	4	45	0.98	5	7	12	1.03
Other Conditions	22	8	9	9	7	55	1.19	14	2	16	1.37
<i>Defective Hearing:</i>											
(1) History of Otitis Media	5	2	4	8	—	19	0.41	1	3	4	0.34
(2) Adenoids	4	6	2	1	—	13	0.28	6	—	6	0.52
(3) Other Causes	16	6	13	2	4	41	0.71	4	6	10	0.86
Active Otitis Media	4	4	2	—	3	13	0.28	2	1	3	0.26
<i>Tonsils and Adenoids:</i>											
(1) Enlarged	208	121	127	83	37	576	12.49	83	25	108	9.28
(2) Removal Advised	38	28	28	13	7	114	2.47	23	14	37	3.18
(3) Removed Previously	286	133	216	193	178	1,006	21.81	102	92	194	16.66
<i>Teeth:</i>											
(1 tooth or more showing gross caries)	291	141	84	73	46	635	13.77	94	9	103	8.85
<i>Heart:</i>											
Organic Disease											
(1) Rheumatic	5	6	4	4	6	25	0.54	3	4	7	0.60
(2) Other Causes	2	2	1	3	3	11	0.24	—	1	1	0.09
Functional Disease:											
(1) Murmurs	31	13	10	8	6	68	1.47	14	4	18	1.55
(2) Arrhythmia	9	2	3	7	3	24	0.52	—	2	2	0.17
(3) Anaemia	1	1	—	—	—	2	0.04	—	1	1	0.09
<i>Lungs:</i>											
(1) Bronchitis	22	7	1	1	2	33	0.72	5	1	6	0.52
(2) Asthma	2	1	2	2	2	9	0.20	—	1	1	0.09
<i>Postural Defects</i>	57	45	52	76	60	290	6.29	47	26	73	6.27
<i>Deformities</i>	33	16	26	19	17	111	2.41	14	12	26	2.23
<i>Enlarged Spleen</i>	45	33	31	26	4	139	3.01	38	9	47	4.04
<i>Nervous Diseases</i>	38	14	16	7	5	80	1.74	10	4	14	1.20
<i>Mentally Retarded</i>	18	9	7	2	3	39	0.85	7	23	30	2.58
<i>Speech</i>	9	6	5	5	4	29	0.63	7	6	13	1.12
<i>Other Conditions</i>	97	53	45	53	35	283	6.14	46	45	91	7.82
<i>Number Examined for:</i>											
Nutrition: Excellent A.	230	110	163	172	168	843	18.41	163	27	190	32.88
Normal B.	980	541	566	517	328	2,932	63.98	199	53	252	43.60
Slightly sub-normal C.	213	168	113	97	31	622	13.57	77	20	97	16.78
Bad D.	55	41	37	34	18	185	4.04	28	11	39	6.74

TABLE 10.

FINDINGS OF MEDICAL INSPECTION, 1938.

Schools: All Coloured and Indian (656).	Group 1. Entrants	Children born in				Total.	Per Cent.	Group 6. Re-examinations.	Group 7. Specials.	Total Groups 6 & 7.	Per Cent.
		Group 2.	Group 3.	Group 4.	Group 5.						
		1929.	1926.	1924.	1922.						
Total Number Examined	253	114	117	72	45	601	—	39	16	55	—
<i>Defects found :</i>											
<i>Skin Disease</i>	19	8	10	3	2	42	6.99	4	—	4	7.27
<i>Defective Vision :</i>											
(1) Requiring Treatment	4	4	5	6	2	21	3.50	1	1	2	3.64
(2) For Observation	—	—	1	1	—	2	0.33	—	—	—	—
(3) Treatment Obtained	1	—	—	—	—	1	0.17	1	—	1	1.82
Squint	5	1	—	1	1	8	1.33	1	—	1	1.82
<i>Other Eye Conditions</i>	8	3	1	2	4	18	3.00	1	2	3	5.45
<i>Defective Hearing :</i>											
(1) History of Otitis Media	—	—	—	—	—	—	—	—	—	—	—
(2) Adenoids	—	—	—	—	—	—	—	—	—	—	—
(3) Other Causes	2	1	1	1	—	5	0.83	2	1	3	5.45
Active Otitis Media	—	—	—	—	1	1	0.17	—	—	—	—
<i>Tonsils and Adenoids :</i>											
(1) Enlarged	28	3	17	7	2	57	9.48	—	3	3	5.45
(2) Removal Advised	2	1	1	—	1	5	0.83	—	1	1	1.82
(3) Removed Previously	8	1	14	5	4	32	5.32	1	1	2	3.64
<i>Teeth :</i>											
(1 or more teeth showing gross caries)	60	16	14	5	3	98	16.30	3	—	3	5.45
<i>Heart :</i>											
Organic Disease :											
(1) Rheumatic	—	1	1	—	—	2	0.33	—	1	1	1.82
(2) Other Causes	—	—	—	—	—	—	—	—	—	—	—
Functional Disease :											
(1) Murmurs	5	2	5	3	—	15	2.50	—	1	1	1.82
(2) Arrhythmia	2	—	—	2	—	4	0.67	—	—	—	—
(3) Anaemia	—	—	—	—	—	—	—	—	—	—	—
<i>Lungs :</i>											
(1) Bronchitis	2	1	—	—	—	3	0.50	—	—	—	—
(2) Asthma	—	—	—	—	—	—	—	—	—	—	—
<i>Postural Defects</i>	1	1	4	5	2	13	2.16	3	1	4	7.27
<i>Deformities</i>	4	2	2	1	—	9	1.50	—	—	—	—
<i>Enlarged Spleen</i>	17	10	5	3	—	35	5.82	2	1	3	5.45
<i>Nervous Diseases</i>	—	—	1	—	—	1	0.17	—	—	—	—
<i>Mentally Retarded</i>	1	—	—	—	—	1	0.17	—	—	—	—
<i>Speech</i>	4	—	—	1	1	6	1.00	2	—	2	3.64
<i>Other Conditions</i>	9	8	7	3	4	31	5.49	—	3	3	5.45
<i>Number Examined for :</i>											
Nutrition : Excellent A.	16	2	7	7	2	34	5.69	—	—	—	—
Normal B.	134	69	72	48	37	360	60.20	7	2	9	40.91
Sub-Normal C.	59	22	27	11	5	124	20.73	3	1	4	80.18
Bad D.	44	19	11	6	—	80	13.38	9	—	9	40.91

Geographical Incidence: For comparative purpose, the country has been divided into 5 districts (see map). It is not claimed that there is any definite climatic, geological or anthropological reason for this division except in a very broad sense. All districts contain a certain number of immigrants from other districts, especially in the two towns of Salisbury and Bulawayo, but it is impossible, except in special circumstances, to eliminate the immigrants from the figures of the district in which they were resident at the time specimens were taken.

Looking at this Table, the most striking features are:—

(1) The high incidence of bilharzia, especially the intestinal form, on the Eastern Border.

(2) The low incidence of intestinal bilharzia in the Bulawayo District.

(3) The high incidence of urinary bilharzia and the complete absence of intestinal bilharzia in the Charter District.

(4) The high incidence of intestinal bilharzia in the Midlands District.

Intensity of Infection: No attempt has been made to measure this so far. Many of the random samples were not examined clinically at all, and a large proportion of those which were, as well as many of the special cases, suffered from no symptoms which could be attributed without doubt to their bilharzial infection. The harmful effects of bilharzial disease do not arise purely from the effects of the ova. These produce the classical symptoms of haematuria and dysentery, so the presence of very few ova in the specimen does not guarantee a mild infection. On the contrary, there is a visceral type of bilharzia, due to a preponderance of male parasites in which few or no ova are produced in urine or stool, but in which the parasites' habitation in the liver causes more serious symptoms than classical ones.

Importance of Bilharzia: From the results of this survey, bilharzial infection appears to be, next to malaria, the commonest defect in Southern Rhodesian school-children. A large number of those children infected with bilharzia had no symptoms at all and appeared to be in normal health.

There are three possible explanations for this, namely:—

(1) the infection was a recent one; (2) the infection was of mild degree; (3) these children had developed a good degree of immunity to the parasite.

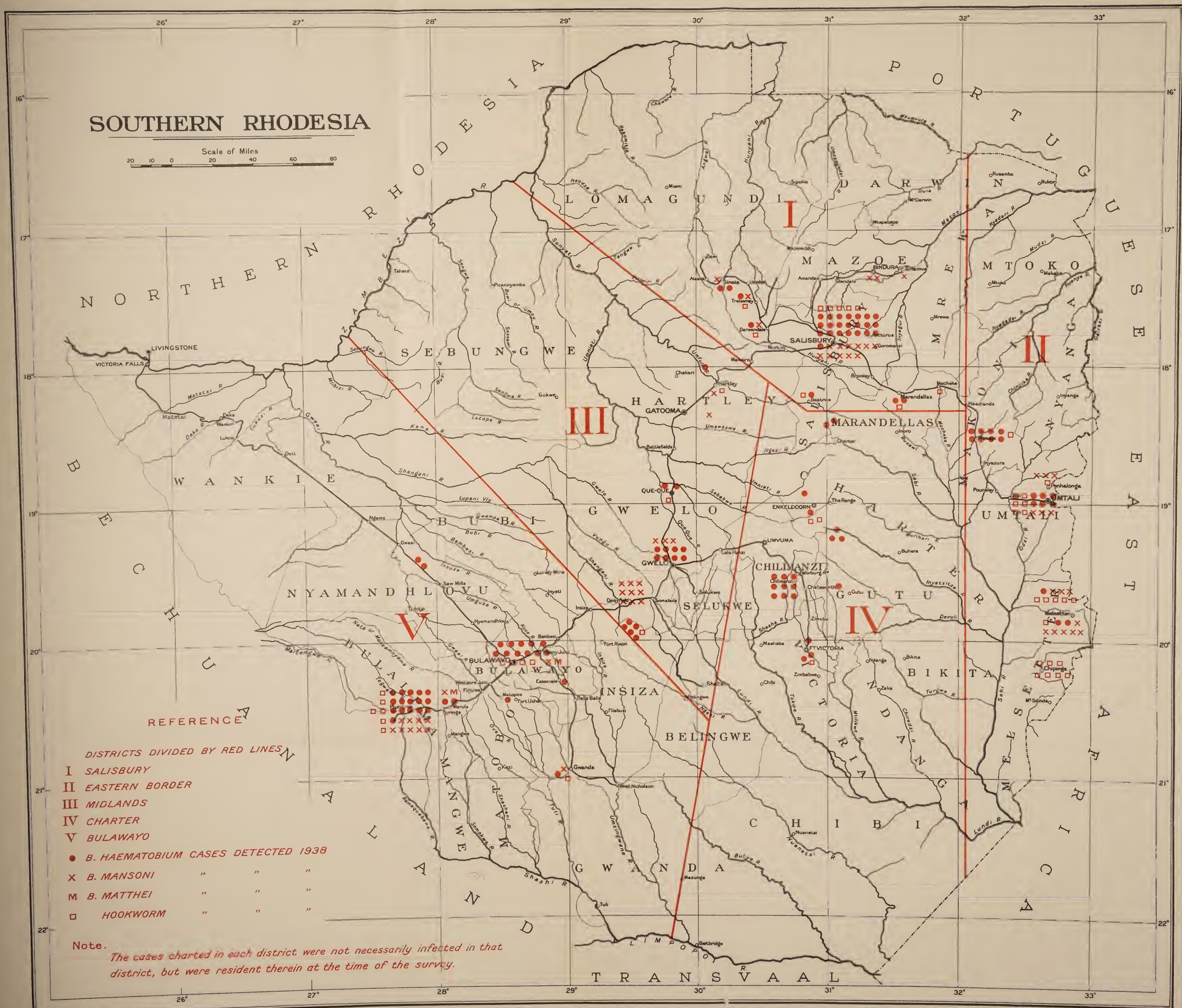
Are these symptomless infections of any importance? It is well known that the bilharzia parasite is a long-living one, and from pathological exhibits it would appear to produce chronic irreparable damage in the part of the body in which it is situated. It is possible therefore that these symptomless infections may be of an insidious chronic nature which do not declare themselves until many years have passed and sufficient internal damage has been completed. This could be put to proof by a large survey of adult Europeans who had spent their childhood in Southern Rhodesia.

Other Parasites: While testing the urine and stool for bilharzia, the presence of ova of other helminths or other abnormalities was noted. No search was made, however, for cysts of *Entamoeba histolytica* in this survey.

Hookworm was the commonest parasite detected in this manner. The incidence of hookworm is of minor importance compared to the degree of infection. The presence of a small degree of infection produces no symptoms nor does any irreparable damage to the host. The degree of infection was not estimated during this survey, but where haemoglobin index was estimated, this has been listed on the accompanying chart. The figures are too few to make any definite conclusion possible, but 13 out of the 29 cases on the list had indices of from 50 to 60, which means that nearly half these cases were definitely anaemic, which is the main symptom of a heavy infection of hookworm.

However, in view of the presence of malarial infection in the majority of children in this country, one cannot be certain that hookworm infection was responsible for the anaemia in these cases.

Of the 49 cases of hookworm detected at this survey, 21 were in schools on the Eastern Border, but owing to migration it is possible that some of those in other districts were originally contracted on the Eastern Border.



SOUTHERN RHODESIA

Scale of Miles
0 20 40 60 80

REFERENCE

DISTRICTS DIVIDED BY RED LINES

I SALISBURY

II EASTERN BORDER

III MIDLANDS

IV CHARTER

V BULAWAYO

● B. HAEMATOBIIUM CASES DETECTED 1938

x B. MANSONI

M B. MATTHEI

□ HOOKWORM

Note.

The cases charted in each district were not necessarily infected in that district, but were resident therein at the time of the survey.

Hookworm infection is usually contracted by walking barefoot on warm, moist soil which has been contaminated by the excreta of a person suffering from hookworm.

There is good reason to believe that its presence among European school-children in Southern Rhodesia is due to two factors—

(1) the habit of walking barefoot adopted by some children;

(2) the lack of sanitary accommodation for native employees in certain dwelling houses and hostels.

The higher incidence of hookworm on the Eastern Border can be explained by the more humid conditions prevailing there than in the rest of the country and the abundance of shady vegetation.

The other helminths detected at this survey are contracted from two sources—

The *Taenia* spp. (large tapeworms) are contracted by eating raw or undercooked, infested beef or pork.

H. nana (small tapeworms), *E. vermicularis* (threadworms), *A. lumbricoides* (roundworms), and *T. trichiura* (whipworms), are contracted by direct infection from food or drink which has been contaminated with ova through insanitary conditions.

Summary: School medical inspection, without routine laboratory testing for parasitic infection, would be in this country a farce, because it would miss some of the most prevalent defects. Unfortunately, no laboratory test has yet been devised which is applicable for routine testing for malaria—the most common defect of all.

This survey has made obvious the necessity for research on the following lines:—

(1) The invention of a test for the presence of latent malaria, applicable for routine use.

(2) The perfection and standardisation of the skin test for bilharzia.

(3) The assessment of the pathogenicity of symptomless parasitic infection in children.

(4) The reason for the difference in incidence of urinary and intestinal bilharzia in the various districts, the most striking anomaly being in the Charter District.

(5) A survey of school-children for anaemia by a more accurate method than Tallqvist's.

(B) *Mental Deficiency*: This special investigation is described above under the appropriate heading.

(C) *Plumtree School*: Owing to certain circumstances connected with the environmental hygiene of this school, it was considered necessary to conduct a special investigation. This was carried out by the Male Schools Medical Officer and the Field Officer and occupied ten days. The subsequent report of 101 foolscap pages, in addition to maps, plans and photographs, has been submitted separately.

(D) *Test for Cardio-respiratory Efficiency*: In view of the large number of cases of functional heart murmurs and arrhythmias, it was considered necessary to assess the importance of these, especially in regard to the advisability of such children indulging in sports and games. The ideal method would be to secure an electro-cardiographic record in all these cases, but this is not possible unfortunately.

It was thought therefore that a more rapid and standardised method than the exercise tolerance test might be found. In this respect the 40 millimetre mercury U-tube endurance test for cardio-respiratory efficiency, as used by the Air Ministry for testing pilots, was considered worth trying. It was tried out in a school of 188 boys of varying ages. The test is fairly rapid. It consists of blowing an open mercury column up to 40 millimetres, holding the breath *while maintaining the column at 40 mm.* for at least 50 seconds. During this time, the pulse-rate is taken, and the number of beats per 5 seconds is noted (a) before commencing the test; (b) during the test. The pulse-rate per 5 seconds should not rise above 9 during the test.

A note was made of circumstances of athletic prowess in those cases giving the best results, and it soon became evident that the most important factor was *not* general physical efficiency, but practice in forced expiration. Those with the best results were mostly buglers. The most striking example of this was a bugler who had mitral and aortic regurgitation and a dilated heart who nevertheless maintained the column at 40 mm. for 80 seconds, during which time his pulse-rate per 5 seconds never rose above 6.

Various other factors greatly complicated this test, the psychological factor being a most important one, while there is little doubt that after some practice it is possible to pass this test very satisfactorily no matter how inefficient one's heart and lungs are. On the whole, it is no use for children under 13 years of age. Those who failed the test did not appear to have any defect of their cardio-respiratory functions.

It should not be thought from this that any aspersion is being cast on this test as a test for *pilots*. For great heights, sustained powers of expiration are necessary. The test in this case was used for a purpose for which the Air Ministry has never recommended it.

The available figures for this test are very lengthy and being considered of little value are not worth inserting in this report.

IV. MENTAL DISEASE.

Dr. Rodger, the Medical Superintendent, Ingutsheni Mental Hospital, reported as follows:—

“ On the 1st January, 1938, there were 478 patients on the register, an increase of 68 over the number on the corresponding date on the previous year. During the year 223 patients were admitted, 195 discharged and 87 died. Seven hundred and one cases were treated, consisting of 92 European males, 69 European Females, 429 native males and 111 native females.

On the 31st December, 1938, there were 419 patients remaining on the register, a decrease of 59 in the year.

Discharges: During the year 195 patients were discharged. 183 of these were recovered, being 35 Europeans and 148 natives. The remaining 9 Europeans and 3 natives were discharged unrecovered.

The recovery rate, calculated on the total number of admissions was 82.06 per cent., European recoveries being 76.09 per cent., and native recoveries 83.61 per cent., almost three times as many as last year. It would be well if these figures could attain a wider publicity than this report is likely to give them. Admittedly they are phenomenally high and, for a reason which will appear later, are unlikely to be repeated, but they do demonstrate convincingly that Mental Hospitals are now, for the majority, places of hope and cure.

It has recently been fashionable to decry Ingutsheni. The critics are mainly people who are utterly ignorant of all that pertains to a Mental Hospital and have no basis of comparison. Ingutsheni, with the exception of the Male European Block, is as well built and equipped as the average County Mental Hospital of its size in England. This Block unfortunately has been so badly designed and is in such a state of disrepair from age that it will not lend itself to re-designing and before it can be considered satisfactory it is likely that it will have to be demolished and re-built. When the projected new buildings are completed, probably before the end of 1939, it will be ahead of the majority. I feel that the criticism is not hostile, and is meant to be helpful, but the fact remains that it tends to make people avoid Ingutsheni for themselves and for their relatives, until the last possible moment. This is to be regretted because the earlier mental disease is treated the greater is the chance of recovery. There is no more disgrace in a mental disorder than in a broken leg. The disgrace attaches only to relatives who, by reason of prejudice, fail to obtain the appropriate treatment as soon as symptoms arise.

When on this subject, it might be well to refer to the ward of the new Bulawayo Hospital now being built by the Sweepstake Trustees for nervous cases. Apparently there is no definite public knowledge as to its purpose. It has been suggested that it is to be a private mental Hospital and that it is to relieve Ingutsheni. Actually it is neither of these. It is a ward where people suffering from nervous breakdowns and nervous exhaustion can be treated, as they are now treated in the Memorial Hospital. It will be licensed only for voluntary patients and for temporary patients—uncertified. It will be illegal to have certified patients in it; these will continue to be treated in Ingutsheni.

Voluntary Patients: Thirteen voluntary patients were admitted during the year. Nine voluntary patients were discharged recovered, three improved and one not improved. Two remain. This is a slight improvement on last year when ten patients were admitted and two remained. A high voluntary admission rate is likely to be balanced by a low rate of certified admissions in a few years.

Deaths: There have been 8 European and 79 non-European deaths during the year. The death-rate, calculated on the number of patients treated, was 12.41 per cent., the rate for Europeans being 4.97 per cent., and for natives 14.63 per cent. This is a low rate for Europeans and a high rate for natives.

Repatriations: During the year 36 recovered patients were repatriated to Northern Rhodesia, to Nyasaland, and to P.E.A.

Probation: Of the patients who had not completed probation at the end of 1937, 14 recovered, 2 had probation extended and 3 returned to Hospital. Probation was granted in 27 cases during 1938. Three have now been discharged, 7 have returned, and 17 have not yet completed their probationary period.

Health: The health of the European section of the Hospital has been good. An epidemic of influenza in September, resulting in one death, was the only disease worthy of remark. One European female patient went to the Memorial Hospital for a successful abdominal operation, and from time to time various patients have gone for X-ray and other specialised examinations.

Casualties: One European male sustained a fractured femur by being pushed off a seat by another patient. There were no other serious casualties.

Occupation and Amusements: Occupation is well maintained and shows a little improvement. Amusement remains at about the same level except that a Ford Safari Van, presented to the Hospital Board by the Sweepstake Trustees, has been useful in increasing the number of picnics and excursions.

Mental Hospital Board: The Board continues to meet regularly. It discharges its functions satisfactorily, and its members take a keen interest in the equipment and organisation of the Hospital.

Additions, Alterations and Improvements: A new Nurses' Home has been erected and is in use. The rooms thus vacated are being adapted for use as a temporary Admission Ward and will be in use in a few days. The female European ward has been sub-divided. Some measure of classification will very soon be possible.

A new Admission Hospital is projected, its plans are almost completed, and much of the material for its construction is already on the ground. When this is completed, the Hospital will have sufficient beds to allow for expansion for many years.

The European Wards have been entirely re-painted, a long delayed repair which has effected a considerable improvement in their appearance.

Divine Service: During the year the Clergy of Bulawayo have continued to visit the Hospital and to hold services.

Parole: Four female Europeans, 39 male Europeans and 6 natives have been on parole.

Acknowledgments: The Cinemas of the town continue to extend their hospitality to suitable patients and to supply films at a reduced rate for the Cinema entertainments here.

Toe H and the Sons of England Society visit the patients regularly. The Jewish Ladies' Society and the Rovers Concert Party continue to supply entertainments, and the Good Companions invited a large number of patients to their Pantomime.

The Rhodesian Printing and Publishing Company have very kindly increased their supply of newspapers. The thanks of the patients are extended to all these for their kindness.

I wish to thank the officers and staff of the Hospital for their continued support during the year.

Out-Patients Clinic: When I took up duty here I immediately commenced an out-patient clinic at the Memorial Hospital. This did not prove a success. I am glad to say however that during 1938 it has resuscitated itself on very informal lines, but with gratifying success.

Cardiazol Therapy: The large increase in the recovery rate is almost entirely due to the introduction of this form of treatment.

It is used principally for Schizophrenia, which might be described as the cancer of the mental diseases. Fifteen to 16 per cent. of admissions to mental Hospitals are suffering from this disease, and because of its low recovery rate, 50 to 60 per cent. of chronic patients are its victims. The old methods of treatment show a recovery rate of only 3.5 per cent. This has changed.

The treatment is supposed to be most efficacious in the first 18 months of the disease, but I have treated all schizophrenia cases admitted here since 1932, a total of 205. Of these 31.7 per cent. recovered and 29.26 per cent. improved. Recovered means that the patients were able to resume their former lives. Improved means that they were able to live in a sheltered environment out of Hospital or that their conduct was such as to make for their greater comfort and usefulness in Hospital.

Of those treated in the first 18 months 41.2 per cent. recovered, 21.3 per cent. improved. I append a table of results.

Cardiazol Treatment.

Duration of Residence in Hospital	Number	Recovered	% of Recovery	Improved	% of Improvement	Not Improved
Less than 6 months	84	39	46.5%	18	21.4%	27
6-12 months	29	12	41.4%	5	17.1%	12
12-18 months	18	3	16.6%	5	27.7%	10
18-24 months	17	4	23.5%	7	41.1%	6
24-30 months	4	1	25%	1	25%	2
More than 2½ years	53	6	11.3%	24	45.2%	23
Total	205	65	31.7%	60	29.26%	80

The smallest number of injections needed to produce recovery was 3, the greatest was 26.

It is a somewhat drastic treatment to watch, but so far it has proved 100 per cent. safe for Europeans. There has been no death and no severe illness traceable to its use in the European wards.

With the native it is different. There has been no sudden death, and the recovery rate is 31.25 per cent. over the 6 year group, but in several cases illness and death have followed the treatment, and must in part be attributed to it. Deeply as I regret this I feel that the loss of these patients is more than offset by what is practically a tenfold increase in the recovery rate of this disease, in the great reduction of this large group of chronic cases, and the improvement in many of those who remain in Hospital.

The installation of a portable X-ray apparatus would be of great assistance in selecting the patients suitable for this treatment.

V. GOVERNMENT DENTAL SERVICE.

The Government now employs three full-time Dental Surgeons with headquarters in Salisbury, Bulawayo and Gwelo.

A summary of the work performed by this Section is detailed hereunder.

Dental Treatment: B.S.A.P.

	Salisbury.	Bulawayo.	Gwelo.
Fillings	239	107	—
Extractions	200	54	—
Sealings	26	63	—
Other operations	287	7	—
Dentures supplied	48	16	—
Dentures repaired	9	4	—

School Dental Service.

	Salisbury Division.	Gwelo Division.	Bulawayo Division.
No. of children examined	4,201	916	3,060
No. of children treated	695	250	297
No of fillings—			
Temporary teeth	83	43	50
Permanent teeth	1,097	733	247
No. of extractions—			
Temporary teeth	693	181	339
Permanent teeth	244	117	73
No. of other operations	25	1	3
No. of sealings	60	20	6

Indigent Europeans and Natives.

	Salisbury Division.	Bulawayo Division.
No. of extractions	1,209	160
No. of fillings	54	14
No. of sealings	2	1
No. of other operations	29	1
No. of dentures supplied	27	14
No. of dentures repaired	2	1

VI. HEALTH OF THE B.S.A. POLICE.

European: The number of cases of illness and injury increased by 65, from 983 in 1937 to 1,048 during the year under review. This figure is largely accounted for by an increase in (1) minor injuries from 202 to 229; (2) knee injuries from 36 to 49; and (3) conjunctivitis, iritis and defective vision from 18 to 29. The average number of days lost per case (light duty being counted as half-a-day) was 8.21 as against 7.76. No duty accounted for 6,656 days and light duty 3,924; the 1937 figures being 5,841 days and 3,584 days respectively. This increase in the number of days lost is due to the more severe types of malaria and influenza encountered, and to fractures—one case in this group being off duty for 349 days.

Only one case of gonorrhoea was treated and there were no cases of syphilis.

There were three deaths during the year. One resulted from a gunshot wound, and the other two from motor and shotgun accidents respectively. Two members were discharged as medically unfit.

Native: The figures for the two years show little variation. An increase of 19 cases was recorded, but the average number of days lost per case was stationary at 6.85. The number of cases of gonorrhoea (19), and gonorrhoea and syphilis (2), remains the same as in 1937, but syphilis cases increased from 34 to 43, and one case of climatic bubo was treated.

Eight deaths were recorded, two being due to malaria, one to septicaemia, one to gastric influenza, and four to the pneumococcus (in two cases the lungs only were affected, in one both pneumonia and meningitis occurred, and in the other peritonitis and meningitis). There were seven discharges on medical grounds.

General: The increase in the number of European cases is of little significance, being mainly accounted for by ailments of a minor character. The native figures approximate those of the previous year which, taking into consideration an increase in the establishment from 1,058 to 1,088, is a satisfactory position.

VII. RED CROSS SOCIETY AND ST. JOHN AMBULANCE BRIGADE.

This year of crisis and anxiety has had at least one favourable repercussion in the acceleration of interest in the work of these Societies.

St. John Ambulance Brigade has trained and passed through the various examinations—

Junior First Aid	35 Europeans
	58 Natives
Adult First Aid	209
Adult Home Nursing	36
Junior Home Nursing	8

Very great interest has been shown in the Annual Competitions and the keenness and enthusiasm displayed has been of great encouragement to the organisers.

The Red Cross Society has also shared in the increased activity and interest and both organisations continue to work in friendly unison and there is ample scope for both bodies working within the Colony.

The Red Cross Society now has 15 Branches throughout the Colony and during the year awards have been gained as follows:—

First Aid 101, Home Nursing 53, and Hygiene and Sanitation 2.

The Senior Division now has 90 trained for the Ambulance Detachments and 95 trained for the Nursing Detachments and 50 unattached but trained. 306 are in the course of training.

The Junior Red Cross has increased in the year from 17 to 64 links with a membership of 4,319.

CHAPTER IV.

HOSPITALS AND LABORATORIES.

(1) Hospitals.

As has been stated in previous reports, in Southern Rhodesia the Government Hospitals not only afford treatment for the indigent, as is the practice in other countries, but here in addition, all classes of the population are admitted and treated. Patients who in other countries become the inmates of private nursing homes in times of illness, find suitable accommodation in the private wards of Government Hospitals. There is now, however, a very fine private hospital established in Salisbury by the Little Sisters of Mary—St. Anne's Hospital.

Expenditure on Government Hospitals, not including the salaries of Government Medical Officers, amounted to approximately £159,250 during the financial year ended 31st March, 1937, and the revenue received to approximately £35,960. Government thus bears 77.5 per cent. of the cost, this figure compares with 77 per cent. last year, this increase is probably caused by the ever increasing use made by the native population of the clinics which are being built for their especial benefit throughout the Colony.

Admissions of European, Asiatic, Coloured and Native patients to Government Hospitals
for the years 1934 to 1938.

	1934	1935	Inpatients.		
			1936	1937	1938
European	6,624	6,820	7,642	8,040	8,356
Asiatic, Native & Coloured	10,727	10,717	12,328	13,704	18,849
	<hr/> 16,991	<hr/> 17,537	<hr/> 19,970	<hr/> 21,744	<hr/> 27,205
	1934	1935	Outpatients.		
			1936	1937	1938
European	10,135	11,966	14,345	22,685	15,909
Asiatic, Native & Coloured	27,273	24,700	36,895	44,521	48,479
	<hr/> 37,408	<hr/> 36,566	<hr/> 51,240	<hr/> 67,206	<hr/> 64,388

Salisbury Hospital: At 2,868 the number of European admissions to this hospital were 175 less than in 1937, but the daily average number of patients in hospital was slightly higher at 103.4 as compared with 101.46 last year. European outpatients numbered 5,608 as compared with 8,395 during 1937, this reduction is probably accounted for by the large numbers of persons who presented themselves at hospital during the latter part of 1937 for vaccination. Native and Coloured admissions numbered 2,934, which is 137 more than last year and the number of native outpatients treated increased by 2,172, giving a total for 1938 of 17,536.

The Medical Superintendent of the hospital remarks that the Native wards of the hospital are almost invariably grossly overcrowded.

The number of operations performed on Europeans fell from 1,790 in 1937 to 1,473 in 1938, a decrease of 317, this decrease is accounted for by the large number of minor operations which are now performed in the new outpatient department and for which no figures are available. Operations performed on natives increased from 350 in 1937 to 387 in 1938. The X-Ray Department dealt with 3,101 patients, being an increase of 216 over last year. Attendances in the Massage Department increased by 2,769, making a total of 6,795. Through the generosity of the State Lottery Trustees, who provided certain instruments to this Department, it was possible for 5,183 patients to receive free massage treatment.

The Medical Superintendent remarks that the opening of the St. Anne's Hospital has not affected, to any great extent, the number of admissions to private wards, there being only 11 less than in the previous year. It has however considerably relieved the waiting list.

Memorial Hospital, Bulawayo: The number of European admissions to this hospital again constitutes a record, being 2,381, or 102 more than in 1937. The daily average of patients treated, however, was reduced from 94 to 86. Four thousand three hundred Native admissions in 1938 was 299 more than in 1937, and in this respect the Medical Superintendent remarks that the daily average number of Native patients treated has been for some three years in excess of the number of beds provided.

Outpatients: In the European section there was a drop in outpatient attendances from 8,399 in 1937 to 6,537 in 1938, and in the Native section from 12,619 to 8,345, this reduction is probably accounted for by the increased facilities at the Municipal Location clinic and at other clinics in the district, such as Fort Usher and Inyati. In the operating theatres 2,001 operations were performed, which is an actual decrease of 79 on the previous year, but 126 more major operations were performed. During the year the X-Ray Department has been brought up to date by the installation of a modern Siemen's plant and 1,810 X-Ray examinations were made. The Chaoul superficial therapy plant is in process of installation and should be available early in 1939.

In the Massage Department 1,332 treatments were given. There was an increase in the number of Native cases of Scurvy admitted, being 179 as compared with 129 in 1937. Nineteen cases of Onyalai were admitted and three deaths occurred as compared with 18 admissions and five deaths last year.

Tuberculosis: The number of patients treated for this increased in Europeans from 7 in 1937 to 14 in 1938, and in Natives from 48 to 59 in the same period. Of the 14 European and 59 Native cases 9 European and 32 Native cases were of the respiratory system and in this connection the Medical Superintendent remarks that only a small proportion are in the early stages at the time of admission to Hospital.

Gwelo Hospital: The new Hospital was opened by the Prime Minister in February. Admissions numbered 510 Europeans and 1,129 Natives and Coloured and these figures show increases over those of last year of 78 and 23 respectively. The number of outpatients treated, however, show considerable reductions as compared with 1937, being 867 Europeans and 2,771 Natives as against 1,433 Europeans and 2,904 Natives. As in Salisbury and various other districts this reduction is accounted for by fewer vaccinations.

Gatooma Hospital: The total number of admissions to this hospital was 2,221, being 650 European and 1,561 Natives, which numbers are greater than those of last year by 26 Europeans and 111 Natives. The outpatient department dealt with 983 Europeans and 4,569 Natives, being increases over 1937 of 152 and 1,234 respectively. A further decrease in the number of European cases of malaria treated is reflected in the following figures, 1936 217, 1937 173, and 1938 152. Although large numbers of Native Venereal disease patients are now treated at the various clinics and dispensaries which have been established throughout the Colony, the number of patients of this class treated at the Gatooma Venereal Disease Clinic increased to 1,561 as against 1,427 during the previous year. The number of cases of Scurvy treated numbered 46 as compared with 57 in 1937. The new X-Ray block has added greatly to the convenience of the Hospital.

Umtali Hospital: During the year 2,280 cases were admitted for treatment to the Umtali Hospital, 854 of these were European and 1,426 were Natives and Coloured. An increase of 475 Native admissions over the number for 1937 necessitated the use of a hut as an extra ward. The Outpatient Department treated 412 Europeans, a decrease of 287 on the 1937 figures.

Native outpatient attendances again increased over preceding years, being 2,163 attendances more than in 1937. The treatment of this increasing number of Native outpatients has been greatly facilitated by the addition of a new wing to the Native Hospital and by the appointment of a Native Microscopist. As a result of this convenience a greater number of cases of parasitic infections have been discovered and in this connection the Senior Government Medical Officer again comments upon the high rate of these infections. The new Asiatic Block should be ready for occupation early in 1939 and this will release the present Asiatic wards for Native females and children.

Fort Victoria Hospital: The work of this hospital continues to increase, 1,377 patients being admitted during 1938, this is 439—71 Europeans and 368 Natives—more than in 1937. The number of outpatients was, however, considerably less, being 369 Europeans and 662 Natives as compared with 1,158 and 1,422 respectively in 1937, here again this decrease is probably due to the fact that many vaccinations were performed during 1937. There were 19 fewer cases of Malaria and 3 fewer cases of Blackwater Fever seen during 1938.

Sinoia Hospital: European admissions rose from 169 in 1937 to 175 in 1938 and Native admissions from 643 to 768. Eleven maternity cases were dealt with during the year, this is the same number as in 1937. The Government Medical Officer comments very strongly on the large number of cases of Scurvy, viz., 45 as compared with only 1 in 1937, 43 of these cases were admitted from farms and it is noteworthy that the majority of cases came from "large concerns, often where there were several sections under the control of different European managers."

Gwanda Hospital: This Hospital dealt with 97 European and 1,077 Native patients during the year as compared with 165 and 1,041 respectively during the previous year. Fifty-five less Native patients attended the Venereal disease clinic. In the Outpatient Department the European treatments fell from 380 in 1937 to 332 during the year under review but Native treatments increased from 743 to 780.

The Government Medical Officer attributes the decrease in the number of European admissions to hospital to the fact that he has been on long leave. The increase in the number of cases of Seurvy treated from 92 in 1937 to 126 in 1938 is, in the view of the Government Medical Officer, not an indication of increased incidence of this disease but is due, in no small measure to the vigilance of the Compound Inspector who has caused all cases which he has observed during his tours of inspection to be sent to hospital for treatment.

Enkeldoorn Hospital: Eighty-two European and 546 Native patients were admitted to the Enkeldoorn Hospital during 1938 as compared with 127 and 607 respectively in 1937, these figures show further decreases in the number of patients admitted. European outpatients decreased from 841 in 1937 to 219 in 1938 and during the same period Native outpatients decreased from 2,935 to 1,133. The number of Native Venereal disease patients remained at approximately the same as in 1937, viz., 136.

Shamva Hospital: The continued use of this hospital for the benefit of European patients is not warranted as only 45 European patients were admitted during the year, consequently the number of European staff units maintained was four times the number of patient units. Of the total number of European patients admitted 19 were suffering from Malaria and one from Blackwater fever. The number of Native patients also dropped, being 380 in 1938 as compared with 470 in 1937. The numbers of outpatients treated were only 64 European and 11 Native. There were, however, 298 Native Venereal disease patients treated.

Que Que Hospital: The value of this hospital to the district which it serves is indicated by the number of admissions which in 1938 was 466, of which 150 were Europeans and 316 Natives. Thirty cases of Malaria amongst the European patients and one case of Blackwater Fever were treated during the year. At the outpatient department 51 Europeans attended for treatment. The Government Medical Officer remarks that as very few people in the district take any precautions against Malarial fever he expects this disease to be prevalent during the forthcoming year.

Bindura Hospital: At this hospital also the number of patients treated shows that it is serving a real need of the district. Five hundred and seventy-seven patients were admitted to the hospital, of which number 131 were European and 446 Natives. Fifty-two European patients were treated for malaria and three, of which two were fatal, for Blackwater fever. The numbers of outpatient attendances were 223 European and 576 Native.

Rusape Hospital: This hospital was taken over by Government as from the 1st April, 1938, and from that date 76 European patients were admitted. During the whole year 284 Native patients were admitted to the Rusapi Native Hospital, 81 European and 404 Natives attended the outpatient departments.

(2) *Laboratory Services.*

The year has again shown a steep rise in the number of investigations and the laboratory staff and accommodation have been taxed to the utmost to deal with the pressure of work. Some much needed extensions and alterations were made to the Public Health Laboratory, Salisbury.

The following table shows the number of investigations carried out in the years 1935 to 1938.

	1935.	1936.	1937.	1938.
Public Health Lab., Salisbury	21,114	31,557	32,092	44,192
Public Health Lab., Bulawayo	2,725	3,605	5,985	8,578
Government Analyst, Salisbury	501	844	1,061	1,201
Total	24,340	36,006	39,137	53,971

(a) THE PUBLIC HEALTH LABORATORY AND PASTEUR
INSTITUTE, SALISBURY.

Staff: Dr. W. K. Blaikie relinquished the Directorship of the Laboratory at the beginning of November, to take up private practice in Salisbury. He had been in charge of the Laboratory since February, 1932, and had the satisfaction of seeing each year a record number of examinations, from 13,000 in 1932 to 44,000 this year.

Mr. W. Rae joined the staff in the Senior Assistants' Grade in September.

Work: A large increase in the volume of work again took place. Our total this year of 44,000 examinations is almost 40 per cent. higher than that of 1937 which was our previous best year. Much of the work has been done under extremely trying conditions, as alterations to the Laboratory buildings have been in progress for many months.

This large increase in work is unfortunately an increase in routine investigations and as a result research work has been practically at a standstill. The list of published work given at the end of this report compares most unfavourably with the lists of previous years.

1. BACTERIOLOGY.

Faeces: Cultural investigation was carried out on 395 stool specimens. These were divided into 334 specimens from Europeans, and 61 from Natives. The following positive cultures were obtained:—

	European.	Native.
<i>B. typhosum</i>	2	—
<i>B. dysenteriae</i> Shiga	1	1
<i>B. dysenteriae</i> Flexner	1	1
<i>B. morgani</i>	1	—

Urines: A very large number of urines was cultured, 909 specimens being examined this year. The results obtained were:—

	European.	Native.
Total	855	54
<i>B. coli</i> and coliform type	441	27
Staphylococci, etc. — — — — —	102	6

It will readily be seen that the number of cultures yielding *B. coli* or coliform organisms is inordinately high.

However, these results are invalidated, to a certain extent, by the failure of clinicians invariably to submit catheter specimens from female patients.

We hope to investigate fully the numerous "coliform" organisms we isolate from urine specimens as our preliminary examinations of these have yielded some very unusual bio-chemical reactions.

Blood Cultures: From 56 specimens of blood for culture the following results were obtained:—

	European.	Native.
Total Cultures	46	10
<i>B. typhosum</i>	4	—
<i>Staph. aureus</i>	1	1
<i>B. coli</i>	—	1
Streptococcus	3	—

Throat and Nasal Swabs: The percentage of swabs showing *C. diphtheriae* has dropped remarkably, but a large number of swabs which were not expected to yield *C. diphtheriae* was examined this year. The numbers and results are shown below:—

	European.	Native.
Total Throat Swabs	989	154
<i>C. diphtheriae</i> positive	54	10
Total Nasal Swabs	112	12
<i>C. diphtheriae</i> positive	6	—

Sputa: Five hundred and seventy were examined for *M. tuberculosis* and the following results were obtained:—

	European.	Native.
Total examined	230	340
<i>M. tuberculosis</i> positive	31	54

As in previous years, we concentrate all sputa which are negative by direct smear examination. It should be noted that some of the positive results are from "repeat" examinations.

Leprotic Material: All examinations made this year were on material from natives. Of 195 examinations, 36 yielded *M. leprae*.

Urethral and Cervical Smears: Eight hundred and seventy-seven examinations for the gonococcus were made:—

	European.	Native.
Total examined	457	420
Positive	111	145

Cerebro-spinal Fluid: Cerebro-spinal meningitis continues to bulk largely in the native morbidity and mortality rates, but it is reassuring to note the very low incidence of this disease (as judged by material submitted to us) in the European population.

	European.	Native.
Total examined, 194	37	157
<i>Staph. aureus</i>	1	1
<i>Meningococcus</i>	—	24
<i>Pneumococcus</i>	—	23
<i>Streptococcus</i>	—	3

The number of pneumococcal meningites is strikingly high, and as is well known there is a very poor recovery rate. It is to be hoped that the new chemo-therapeutics, notably the Drug M. and B. 693 will produce a great reduction in the death-rate from this disease.

Milk and Water Analyses:

Waters examined	195
Milks examined	154

Vaccines: One hundred and nineteen autogenous vaccines were prepared; the large majority of these was intended for use in the numerous chronic catarrhal and bronchial conditions met with in this area.

Numerous other bacteriological investigations were carried out on miscellaneous material.

2. SEROLOGY.—

Complement-fixation Tests: Almost 5,000 complement fixation tests were performed. This is not by any means an extraordinary number for laboratories which concentrate on these tests, but it is a very high figure for a laboratory which has perforce to regard the determination of the Wassermann Reaction as only one of many activities. So much so that we hope, after due control, to follow the Public Health Laboratory, Bulawayo, in introducing a simpler flocculation technique such as the Rytz or the Kleine test. The use of such a technique for the routine examination of native syphilitics would materially lessen the present burden of routine investigation.

The results obtained were as follows:—

	European.	Native.
Total tests, 4,993	618	4,375
Positive	100	1,536
Doubtful	12	145
Negative	497	2,552
Anticomplementary	9	142

Agglutination Tests: We have continued this year to add a *Br. abortus* suspension to the routine Widal test, and this procedure has proved of value in several instances where undulant fever was not suspected.

A total of 429 examinations gave the following results:—

	European.	Native.
Total Tests	157	193
Positive <i>B. typhosum</i> "H"	38	20
Positive <i>B. typhosum</i> "O"	18	19
Positive <i>B. paratyphosum</i> A.	4	2
Positive Br. paratyphosum B.	3	3
Positive Br. abortus	8	1

Weil-Felix Reactions:

Total Tests: 44	38	8
Positive <i>B. proteus</i> X ₂ O	8	—
Positive <i>B. proteus</i> X ₁₉ O	2	—
Positive <i>B. proteus</i> X _k O	1	—

It is to be noted that some of the positive Widal reactions were influenced by T.A.B. vaccine.

3. PARASITOLOGY.—

The demands of this branch of work were again very heavy, but the appointment of a trained African Assistant has helped to relieve the senior staff for other work. During the year a large number of specimens were received from the School Medical Officers, as part of a campaign against bilharziasis in school children. The investigation of these specimens has proved to be very much worth while, and it is hoped that by the end of next year every school child in the country will have been examined.

<i>Faeces:</i>	European.	Native.
Total Tests: 5,136	2,982	2,154
<i>E. histolytica</i>	6	5
<i>G. lamblia</i>	4	—
<i>B. mansoni</i>	110	334
<i>B. haematobium</i>	4	47
<i>B. mattheei</i>	5	8
Hookworm	42	668
<i>E. vermicularis</i>	23	7
<i>A. lumbricoides</i>	1	22
<i>T. trichiura</i>	22	4
<i>Taenia</i> sp.	7	46
<i>Hymenolepis nana</i>	4	20
<i>S. stercoralis</i>	4	5

<i>Urines:</i>	European.	Native.
Total Tests: 7,567	5,413	2,154
<i>B. haematobium</i>	208	419
<i>B. mansoni</i>	4	—
<i>B. mattheei</i>	1	—
<i>E. vermicularis</i>	10	—
<i>T. vaginalis</i>	5	—

Blood: The outstanding feature of the investigation of blood films for parasites was the demonstration, for the first time, of *P. ovale* in Europeans.

A total of 3,676 films was examined for blood parasites, with the following results:—

	European.	Native.
Total examinations	2,650	1,026
<i>P. falciparum</i>	475	301
<i>P. malariae</i>	4	2
<i>P. vivax</i>	5	3
<i>P. ovale</i>	3	—

We continued to study blood films from dogs apparently suffering from biliary fever, with the following results:—

Total films	381
<i>B. canas</i> positive	171

In addition, *B. equi* was demonstrated in a blood film from a horse, and *A. marginale* was demonstrated on four occasions in films from two bulls.

Haematology: A very large number of differential counts was done as part of the parasitological investigation of school children. In children showing eosinophilia with one negative stool and urine examination further examinations were carried out.

	European.	Native.
Full blood counts	243	33
White cell counts	583	15
Red cell counts	137	6
Differential counts	2,178	157
Arneth Index	2	—
Reticulocytes	—	1
Blood Platelets	1	1
Coagulation Time	1	1
Bleeding Time	1	1
Fragility Test	2	—
Heterophile Antibodies (Glandular Fever)	1	—

Biochemistry: A large number of tests was again carried out, as follows:—

	European.	Native.
(a) <i>Blood:</i>		
Fasting Sugar	45	3
Sugar Tolerance Curve	25	—
Laevulose Tolerance Curve	1	—
Urea	50	12
Non-Protein Nitrogen	31	1
Serum Calcium	4	—
van den Bergh Reaction	13	9
Icteric Index	9	3
Cholesterol	—	1
(b) <i>Urine:</i>		
Bile	5	—
Urobilin	109	3
Spectroscopic for Hb. derivatives	7	1
Urobilinogen	1	—
Diastatic Index	4	—
Glucose (Quantitative)	40	—
Urea Clearance test	4	—
Urea	11	—
Ascorbic acid	3	—
Albumin, Quantitative	3	—
(c) <i>Gastric Contents:</i>		
Fractional Test Meals	172	—
(d) <i>Stools:</i>		
Benzidene Tests for Occult Blood	59	5
Bile	6	—

Biological Tests:

Urines for <i>M. tuberculosis</i>	8	5
Friedmann Zondek Oschheim Test	17	1

Skin Tests:

1. <i>Mantoux Reaction:</i> 27	23	4
Positive	3	—
2. <i>Schick Tests</i>	90	—
Positive	35	—

Pollen and Protein Sensitivity Tests.—

	European
Total	98
Mixed Grasses	29
Mixed Compositae	19
Khaki Weed	15
Mimosa Tree	5
<i>Artemesia Afra</i>	10

	European
Pepper Tree	2
Orris Root	2
Animal Epidermis	5
Egg Protein	1
Condiments	1
Chicken Feathers	1
Crayfish	1
Fowls	1

PATHOLOGY—

Histological Examination.—Tissues submitted for routine examination throughout the year numbered 604; this figure represents an increase of 172 on the figure for the previous year. The following is an analysis of the main conditions encountered:—

Tumours.—(a) *Simple*—

Fibroma (hard and soft varieties) — — — —	17
Papilloma	10
Fibro-myoma of Uterus	12
Fibro-adenoma of Breast	6
Adenoma of Thyroid	2
Cysto-adenoma of Ovary	2
Haemangioma	1
Myxoma	1
Lipoma	1
Astrocytoma	1
Total	53

(b) *Malignant*—*Sarcoma*—

Round cell	4
Spindle cell	2
Periosteal	2
Lympho-	3
Chondro-	1
Melanoma	3

Carcinoma—

Breast (Scirrhus)	8
Gland	5
Lung	2
Liver	3
Ovary	3
Omentum (Secondary from Ovarian tumour)	1
Urinary Bladder	2
Prostate	1
Pancreas	1
Jaw	1
Cervix uteri	6

Adeno-carcinoma of—

Breast	2
Cervix uteri	4
Stomach	2
Thyroid	1
Rectum	1
Large Intestine	1
Kidney (Hypernephroma)	2
Skin (Secondary)	2

Other Cancers—

Rodent Ulcer	2
Squamous Epithelioma	8
Squamous Epithelioma of Larynx	1
Adamantinoma	1
Seminoma	1
Spermatoeytoma	1

Total 77

Acute Conditions—

Appendicitis (Catarrhal and suppurative)	46
Acute Obstructive Appendicitis	1
Acute Gangrenous Appendicitis with perforation	1
Acute Yellow Atrophy	2
Acute Amoebic Dysentery	7
Acute Bacillary Dysentery	1
Acute Glomerulo-tubular Nephritis	1
Acute Toxaemic Nephritis	1
Acute Pyelonephritis	1
Acute Lobar Pneumonia	1
Acute Ulcerative Endocarditis	1
Acute Pyosalpinx	2
Acute Suppurative Arteritis	1
Total	66

Subacute Conditions—

Subacute Appendicitis	1
Subacute Yellow Atrophy	2
Total	3

Chronic Conditions—

Chronic Appendicitis	7
Chronic Venous Congestion of Liver	3
Chronic Venous Congestion of Kidney	2
Chronic Cholecystitis	4
Cirrhosis of the Liver	4
Chronic Bacillary Dysentery	1
Chronic Amoebic Dysentery	1
Chronic Mastitis	3
Chronic Diffuse Glomerulo-nephritis	2
Chronic Ischaemic Nephritis	1
Chronic Pancreatitis	1
Chronic Pyonephrosis	1
Chronic Prostatitis	2
Chronic Lymphatic Leukaemia	1
Total	33

Granulomata—

Lymphadenoma of—

Pylorus	1
Small Intestine	1
Gland	1

Tuberculosis of—

Meninges	1
Small Intestine	2
Lung	4
Testis	1
Lymph Glands	7
Liver	1
Spleen	3
Groin	1
Peritoneal Wall	1

Syphilis: Ulcer	1
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Granulation Tissue (cause not determined)	10
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Total	35
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Parasitic Infections—

Bilharziasis of—

Appendix	11
Liver	7
Bladder	4
Ureter	3
Kidney (pelvis)	1
Intestine	3
Seminal Vesicles	1
Prostate	1
<hr/>	
Total	31

Animal Diseases.—Seventeen examinations were made on animal tissues, and the following three pathological conditions reported :—

Adeno-carcinoma of Breast	1
Chronic Abscess of Axilla	1
Infarction of Spleen	1

Miscellaneous—

Cystic Glandular Hyperplasia of the Endometrium	15
Decidua	4
Endometriosis, Uterine	2
of Broad Ligament	1
of Fallopian Tube (peritoneal surface)	1
Endometritis	17
Gynaecomatia	1
Atheroma of Aorta	1
Traumatic Epidermoid Cyst	2
Multilocular Sebaceous Cyst	1
Hydronephrosis	2
Hydrosalpinx	1
Haematoma (Corpus Luteum)	1
Infarction of Spleen	1
Malaria : Liver	5
Spleen	5
Brain	2
Typhoid : Intestine	1
Spleen	1
Colloid : Goitre	1

POST-MORTEM EXAMINATIONS.

The post-mortem dissections number 280—122 were medico-legal and 158 were clinical post-mortems. The great majority of the autopsies were held on Native cases. Improvements were made in the mortuary accommodation during the year and the work can now be carried out under excellent conditions. The following is a summarised statement of the anatomical diagnoses rendered :—

Pulmonary Conditions:—

Tuberculosis	9
Lobar Pneumonia	27
Broncho-pneumonia	22
Bronchiolitis	4
Silico-tuberculosis	1
Influenzal pneumonia	2
Acute pulmonary oedema	1
Empyema	2
Massive collapse of lung	2
Bronchiectasis	3

Intestinal Conditions:—

Bacillary Dysentery	3
Amoebic Dysentery	6
Enteric Fever	4

Acute Colitis	1
Gangrene of gut	3
Appendix abscess	1
Pneumococcal peritonitis	2
Subphrenic abscess	1
Intestinal bilharziasis	2
Volvulus	3
Acute intussusception	2
Acute enteritis	4
<i>Hepatic Conditions:—</i>	
Acute yellow atrophy	5
Bilharzial cirrhosis of liver	4
Stone in Common Bile Duct	1
<i>Urinary Conditions:—</i>	
Bilharzial pyonephrosis	2
Bilharziasis of bladder	2
Cardio-renal disease	1
Acute pyelitis	1
Chronic nephritis	3
<i>Cerebral Lesions:—</i>	
Cysticercosis	4
Meningitis, tubercular	1
cerebro-spinal	1
pneumococcal	3
chronic	1
Encephalitis	2
Intra-cranial haemorrhage	11
Cerebral Abscess	2
Epilepsy	1
Cranial osteomyelitis	2
<i>Malignant disease:—</i>	
Myelomatosis	1
Meylogenous Leukaemia	1
Cancer of pancreas	1
Cancer of stomach	1
Abdominal myxoma	1
Cancer of breast	1
Cancer of liver	1
Cancer of lung	2
Sarcoma	3
<i>Cardio-vascular Disease:—</i>	
Coronary thrombosis	6
Neuman-Pick disease	1
Aneurysm of aorta	1
Arterio-sclerosis	4
Acute cardiac failure	3
Mitral stenosis	1
Pericarditis	2
Subacute bacterial endocarditis	2
Aortic incompetence	1
Cardio-vascular Syphilis	6
<i>Injuries and Accidents:—</i>	
Stab wounds of thorax	2
Compound fractures of legs	5
Fractured skull	16
Drowning	2
Hanging	1
Gas poisoning	1
Childbirth	1
Stab wounds of abdomen	1
Crush injuries of thorax	5
Gun-shot wounds	5
Fractured pelvis	4
Fractured spine	3
Electrocution	1

Other Conditions:—

Abcess of thymus	1
Thymic asthma	2
Melaena neonatorum	1
Diabetes	1
Pellagra	2
Onyhalai	1
T.B. glands of neck	1
Ludwig's angina	1
Gonococcal septicaemia	2
Septicaemia	8
Gangrene of uterus	1
Miliary tuberculosis	3
Vulvo-vaginitis	1
Premature birth	4
Malaria	7
No organic disease	1
Megalocytic anaemia	1

THE RESEARCH PROGRAMME.

Parasitology: It has already been noted that original work has been almost at a discount this year, because of the heavy demands of routine work.

We have continued to test various materials for antigenic value in a skin test for bilharziasis, and have obtained promising results. We are not, however, justified in discussing these at length, since we are not yet by any means satisfied with the performance of these antigens in Europeans. We hope that next year will see these tests made more reliable. Our experience in examining thousands of specimens from school children this year has made it very evident to us that a reliable skin test for diagnosis would save us incalculable time, and would certainly be more accurate than single stool and urine examinations. We succeeded during the year in evolving a very satisfactory antigen for skin testing and complement fixation tests in taeniasis, and hope that it will prove of value in the diagnosis of cysticercosis, a disease met with quite frequently in the native population.

Bacteriology: We have initiated a study of the "coliform" organisms we so frequently encounter in urines sent for culture. These organisms exhibit an extraordinary diversity of biochemical reactions, but again the demands of routine work have not permitted us to go very far with the work. The serological investigation of three hour cultures of staphylococci, begun in 1937, has also suffered, but the work done has not been lost sight of, and no doubt we will contrive to complete the study during the coming year.

Publications during the year are listed below:—

ALVES, W.—"*P. ovale* Infections in Europeans in Southern Rhodesia." South African Medical Journal (Quarterly Scientific Number) Vol. XIII No. 7.

BLAIR, D. M.—Infections with *P. ovale* Stephens in Southern Rhodesia. Trans. R. Soc. Trop. Med. Hyg. XXXII, 2, p. 229.

CARLISLE, V.—"Myelomatosis with Visceral Metastasis in a Native of Southern Rhodesia." S.A. Med. J. Vol. XII, No. 8.

(b) THE PUBLIC HEALTH LABORATORY, BULAWAYO.

During seven months of the year under review the Director was on leave overseas and as no relief staff was available the whole work of the laboratory was undertaken by the remaining members of the usual staff. They deserve much credit for their successful efforts to cope with an increased demand upon their services for the number of specimens investigated during the year again increased greatly over the figure of the previous year. The rise from 5,984 in 1937 to 8,578 in 1938 represents an increase of 43 per cent. on the former total. The actual number of investigations made is much greater as each specimen may be subjected to several tests. Specimens received at the

laboratory may be roughly divided into two classes: those helping to arrive at a diagnosis in individual cases, and those intended to determine the origin and control the spread of disease dangerous to the community at large. The increase has been greatest in this second category with the result that the laboratory is more and more fulfilling its true function of a safeguard to the public health. Grants in aid of laboratory services in Bulawayo are received from the Rhodesia Railways and the Municipality of Bulawayo and a survey of the number of specimens received from the various authorities during 1938 is of interest. The figures are:—

Government	4,300
Rhodesia Railways	650
Municipality of Bulawayo	1,987
Private Practitioners	1,641

With a depleted staff the investigations have been mainly of a routine nature and a brief summary of the nature and results of the more usual investigations is as follows:—

BLOOD.

(1) *Parasitological*:

Malaria: In 589 blood smears, *Plasmodium falciparum* was found in 59 and *Plasmodium malariae* in 2.

Relapsing Fever: *Treponema duttoni* was found in one instance.

(2) *Microscopical*:

Complete blood counts totalled 163 and differential counts 57. Erythrocyte and leucocyte counts were each called for on four occasions.

(3) *Culture*:

Blood cultures numbered 38. In 4 *Bact. typhosum* was isolated, in 1 *Streptococcus haemolyticus*, and in 6 staphylococci, while 4 gave growth of obvious contaminants. The remainder showed no growth.

(4) *Serology*:

Agglutination tests: 162 specimens of sera were examined by the Widal test for the presence of agglutinins against *Salmonella typhi* and other members of the *Salmonella* group.

In 42 positive results were obtained.

Four sera only were received for examination for *Brucella* agglutinins and all were negative.

Wassermann Reaction: A considerable increase took place in the number of sera received for this test. This is largely accounted for by the development of voluntary clinic facilities in the native location. Compared with 1,473 specimens in 1937, 2,575 bloods were examined in 1938, with the following results: Positive 684, doubtful 114, negative 1,777.

Further investigation into the value of the Rytz test had to be postponed owing to pressure of other work, but such investigations will be continued as it seems that a more convenient test than the Wassermann reaction will have to be employed if the increase in the number of specimens continues.

Blood Grouping: The blood group of 19 individuals was determined.

(5) *Chemistry*:

The following quantitative estimations were made:—

Blood Sugar	28
Sugar Tolerance	8
Non-Protein Nitrogen	10
Urea	2
Calcium	1
Van den Bergh reaction	2

URINE.

Microscopical and Parasitological: One thousand three hundred and seventy-two specimens were examined and in 122 the presence of *Bilharzia haematobium* was demonstrated. *Trichomonas vaginalis* was present in 5 specimens.

Bacteriological: A cultural examination of the urine was made in 449 instances. As usual *Bacterium coli* was the most common organism found but many aberrant types giving fermentation reactions characteristic of the *Salmonella* group are met with. *M. tuberculosis* was present on 5 occasions while *Bact. typhosum* was isolated once.

Chemical: In seven hundred and ninety-one specimens the routine chemical tests were applied.

In addition the diazo reaction was employed in two specimens while quantitative estimation of sugar was made on 30, and of urea in one.

FAECES.

Microscopical and Parasitological: Three hundred and ten specimens were examined. The Principal parasitological findings were as follows:—

Protozoa:

<i>Entamoeba histolytica</i>	10
<i>Entamoeba coli</i>	9
<i>Giardia lamblia</i>	2
<i>Trichomonas hominis</i>	26
<i>Chilomastix mesnili</i>	4

Helminths:

<i>Bilharzia mansoni</i>	5
<i>Bilharzia haematobium</i>	21
Hookworm spp.	16
<i>Trichuris trichiura</i>	1
<i>Taenia</i> spp.	4
<i>Strongyloides stercoralis</i>	3

Cultural: In 170 specimens culture were made. Pathogenic bacteria were isolated on the following occasions:—

<i>Bact. typhosum</i>	3
<i>Salmonella</i> group	5
<i>Bact. morgani</i>	2
<i>Bact. alkaligenes</i>	1
<i>Bact. dysenteriae</i> Flexner	6
<i>Bact. dysenteriae</i> Shiga	3

Chemical: Nine specimens were submitted to be tested for the presence of occult blood which was demonstrated twice.

Cerebro-Spinal Fluid: Forty-two fluids were examined for protein and sugar content and cell counts done. In inflammatory conditions meningococci were found on 4 occasions, pneumococci on 2 and streptococci on 2.

One hundred and eighty specimens were subjected to the Wassermann reaction, of which 17 were positive, 1 doubtful, and 162 negative.

GENERAL BACTERIOLOGY.

(1) *Throat and Nasal Swabs*: Eight hundred and forty-eight swabs were examined and the presence of *C. diphtheriae* demonstrated in 45. The incidence of diphtheria in the district again was low, the majority of swabs examined being from contacts of declared cases.

(2) *Sputa*: Four hundred and seventy-one specimens examined for the presence of *M. tuberculosis* gave 39 positive results. Many of these specimens were repeat specimens taken from cases in which clinically suspicious lesions were present with negative bacteriological findings. The majority are examined by a concentration technique.

(3) *Urethral and Cervical Smears*: Four hundred and ninety-nine such smears gave 84 positive results. The majority of these smears come from the municipal examination centre for natives employed in the town.

(4) *Leptotic Material*: Seventeen specimens gave 5 positive results.

(5) *Miscellaneous Examinations*: Nine instances of Vincent infection of the gums or throat were found.

Fungal infection of the hair was found on one occasion.

There were 30 examinations of pus and morbid exudates.

Water and Milk Examination: Eighty-seven samples of drinking water were examined bacteriologically. The findings have been similar to those of previous years, namely that while water supplies under municipal control maintain a high standard of purity, those derived from wells almost invariably are unsatisfactory from the bacteriological point of view. The installation of purifying units in certain rural communities which is now taking place is a satisfactory advance, but those dependent on wells for their supplies should realise that contamination is common, and that steps should be taken to prevent it.

Only one milk was submitted for examination. Under the new Dairy Act bacteriological standards of purity have been introduced and it is anticipated such examinations will increase.

Rodent Examination: Autopsies have been conducted on 210 rodents received from the Bulawayo Municipality. As in previous years no evidence of plague was found.

Medico-Legal: On nineteen occasions exhibits were received for medico-legal examination. As usual the identification of blood or seminal stains constitutes the greater part of work under this heading.

Biological Tests: Schick Test: Fifty-eight tests were made mainly in adults or immunised children. Five positive results were obtained.

Histology: One hundred and twenty-eight sections were examined. The following is a summary of findings:—

Inflammatory Conditions: Fifty-four specimens.

Non-specific:

Ulcers:	Simple	2
	Gastric	1
Endometritis:	Acute	1
	Chronic	5
	Interstitial Chronic	3
	Hyperplastic	1
Appendicitis:	Chronic	7
Mastitis:	Acute	1
	Chronic	2
Myocarditis		1
Salpingitis		1
Lymphadenitis		1
Unclassified (includes masses of unknown origin)		17

Specific:

Tuberculous Glands	4
Bilharzial Appendix	2
Primary Chancre	1
Tuberculous Meningitis	1
Early Pyaemic Kidney	1
Staphylococcal Ulcer	1
Tonsillitis	1

Granulation Tissue: Six specimens:

Non-specific

4

Specific:

T.B. Granulation Tissue	1
Foreign Body (grass seed) Reaction	1

Granulomata:

Gumma of brain	1
Granuloma of doubtful origin	1

Placental Tissue: Two specimens.

Diseases of Blood and Related Conditions:

Myeloid Leukaemia	1
Hodgkins Gland	4

Tumours: Thirty-seven specimens.

Innocent:

Uterine Fibroid	3
Fibromata	3
Papillomata	5
Melanotic Papilloma	1
"Foetal Adenoma" (thyroid)	2
Pseudo-mucinous ovarian. cysts	2
Lipoma	1
Adeno-fibroma (breast)	1
Adenoma of suprarenal	1
Ovarian Dermoid	1
Fibromyzoma	1
Chondroma	1

Malignant:

Epitheliomata	4
Squamous celled carcinomata	2
Adeno-carcinomata	2
Spheroidal celled carcinoma	1
Myxo-sarcoma	1
Myeloma	1
Mixed celled sarcoma	1
Fibro-sarcomata	2
Rodent ulcer	1

Miscellaneous Specimens: Twenty-two specimens.

Atrophic conditions	6
Fibrotic conditions	7
Cysts of unknown origin	3
Other specimens	6

Vaccines: Thirty-six autogenous vaccines were prepared.

(c) THE GOVERNMENT ANALYST'S LABORATORY.

The number of exhibits which were dealt with was 1,201. They are classified as follows:—

Exhibits in Connection with Criminal Investigations:

Exhibits for presence of Poisons	332
Exhibits for presence of Blood Stains	42
Exhibits for presence of Seminal Stains	25
Miscellaneous Forensix Exhibits	29
Total	428

Samples of Water:

General Analysis for Hygienic and Utility Purposes	70
General Analysis for Purification Control	91
Water Suspected of causing Sickness or Injury	14
Swimming Bath Water	1
Distilled Water	1
Thermal Mineral Spring	1
Total	178

Customs Control:

French Brandies	52
Whiskies	7
Cheese	3
Condensed Milk	2
Cleansing Powders	3
Shaving Creams	4
Asphalt	1
Other (dry cleaners, etc.)	4
Total	76

Cows' Milk	67
Human Milk	7
Native Hop Beers	250
Kaffir Beers	2
Illicit Distilled Spirits (Kachasu)	14
Other Illicit Liquor ("Skokiaan")	8
Disinfectants	13
Clinical Specimens	41
Miscellaneous	117
<hr/>	
Total	1,201

The increase in the number of exhibits and samples submitted as compared with the previous year, was 140. As has previously been pointed out, the investigation of any one specimen, not only may, but more often than not does, comprise the performance of a number of separate determinations.

The Criminal Investigations: The 332 toxicological exhibits were submitted in connection with 81 cases, most of which concerned charges of murder or attempted murder by poisoning, though some of them related to the poisoning of cattle, occasionally in large numbers. Analysis elucidated 47 of these cases, and in the majority of them it not only proved that death had been caused by administration of poison, but also yielded cardinal evidence as to the identity of those who were guilty. Arsenic was again the favourite poison, being employed in 24 cases; cyanide was found in 11; strychnine in 3; cantharides beetle in 3; and poisonous euphorbia, giftbol, lysol, carbon-monoxide, ferrocyanide and hydrochloric acid, each in one case. Many of the cases again illustrated the ease with which natives of all types, urban and kraal, men, women and juveniles, appear to be able to obtain large quantities of the most deadly poisons. This is especially the case with locust poison (which is solid arsenite of soda). In one case several small drums of this substance, containing sufficient to kill thousands of people, had been left in the veld and had either rusted through or been forced open. It was not until about thirty head of cattle had died that the drums were discovered. It is by no means uncommon for natives to have in their possession sufficient arsenic to kill hundreds of persons. One native woman who poisoned her husband, actually had three poisons at her disposal—arsenate of lead, Cooper's Sheep Dip and locust poison.

The return to favour of cantharides is rather disquieting because as it is present in serious quantity in the bodies of quite common beetles, it is very easily procured. Moreover it is one of the most cruel of poisons, and except by identification of characteristic fragments of beetle in the stomach, is very difficult to detect. A rather humorous case is one in which a native and her boy friend set out to poison her husband by putting powdered strychnine in his pipe. The woman's child, who was quite near, inhaled sufficient of the strychnine (as it was being powdered) to bring on a severe attack of the characteristic spasms. The woman regarded this as supernatural vengeance and reported everything to the police.

The ferrocyanide case was accidental and was of interest because if the native had not simultaneously imbibed large draughts of Kaffir beer, the acid of which liberated highly poisonous prussic acid from the comparatively innocuous salt, he would have suffered very little harm.

The casual way in which Rhodesians are prone to handle dangerous substances was illustrated in a case where a farmer gave the above-surface portions of the posts of his new cattle kraal a heavy coating of ant-repellant. Within a day or two about a score of the cattle were dead of arsenical poisoning.

Thirty-one of the exhibits submitted for examination for blood-stains gave positive results, and in 29 of these, the blood residue was proved to be of human origin. Seminal stains were identified in two cases. The cardinal importance of stain investigations in charges of murder and rape, requires no emphasis.

Some of the miscellaneous forensic cases were of unusual interest, for example:—

It was possible to make a complete "reconstruction" of the murder of a European woman by utilizing the properties (of colour and structure) of the fibres of a pair of socks, which came into the case at various stages.

The Laboratory elucidation of this case was considered by the Commissioner of Police to be of such interest that it has been incorporated in standard police instructions.

In another case a person who, taking advantage of the fact that the inscriptions upon some registration and prospecting notices had been completely bleached by sunshine, was making untrue statements and unjust demands with regard to some mining claims, retired confused and discomfited when we made the original inscriptions clearly legible.

We were able to prove the identity of a native who tried to commit murder by setting a hut ablaze, by demonstrating that a remnant of a piece of cloth, which had been soaked in petrol and used as a lighter, was identical in character with the suspect's blanket, from which a piece had recently been torn.

In various other cases the alcohol contents of viscera enabled an opinion to be furnished as to whether or not it could be considered that persons who had been killed in traffic accidents had been under the influence of alcoholic liquor.

With reference to the scientific investigation of crime in general it can be stated that the co-operation between the laboratory and the Police continues to develop keenly on sound lines and is regularly yielding results which in general are of distinctly gratifying character. The work and methods are generally of secret character and therefore the public know very little about them, but many of those who discuss with admiration what they have heard concerning scientific detection of crime in other countries (or read in "Thrillers") would be surprised if they knew the full particulars of our own services. It has become the custom to consult us with regard to any special outbreaks of crime, with a view to devising some particularly appropriate method of scientific detection. The Police now send us case reports which reflect the extent to which laboratory investigation has contributed to the satisfactory solution of the various cases.

The following is an extract from a typical one in which our work changed a case of suspected suicide into a murder charge.

"It was entirely due to the analysis that this case was satisfactorily disposed of.

"The discovery of arsenic in the viscera of the deceased and the proof that the woman had been in possession of a quantity of arsenic in a condition identical with that found in the mug, established guilt and led to a confession.

"The accused was found guilty of murder and was sentenced to death at the High Court, at....., on....."

It will therefore be realized that there are few responsibilities associated with the services of the State, which are more grave than those which are regularly and unobtrusively borne by this institution.

Water Analysis and Control of Water Supplies: Not only was there a considerable increase in the number of water samples submitted during the year, there also much activity of a fresh nature in association with the Medical Director's policy of exercising a fuller hygienic control over public water supplies.

Samples were received from most of the towns and townships throughout the Colony, as well as from numerous farmers and plot holders. The analyses performed for the bigger municipalities with large scale equipment have enabled supplies to be used to the best advantage, at minimum cost and with minimum trouble, especially in relation to modifications of treatment which are necessitated by marked seasonal changes in the character of raw supplies.

The smaller places where small scale plants were being installed, have presented special problems which have needed much attention. The treated water from some of these has at times been such as to cause serious concern and with a view to effecting an improvement, the following steps were taken:—

(a) Mr. Kitto, Assistant Chemist, has visited various places, made an intensive study of the local supplies and plants; operated the plants experimentally under various conditions, and given demonstrations of optimum working conditions to the Superintendents.

(b) The Superintendents of five small scale Government plants (serving various townships) have been brought to the Laboratory and given intensive periods of coaching in the theory and practice of water purification.

(c) Closer relationships have been established between the supplies and the laboratory; so that the nature of raw supply and of treated product are checked more frequently. The plants are thereby operated under a closer system of scientific control.

The results of the measures enumerated are becoming apparent, although it is hoped that we shall be able to report considerably increased progress next year.

Space forbids any detailed reference to the water samples, but as an instance of the range of questions put, one sample was examined with a view to deciding whether or not the operations of a newly arrived miner, were significantly lowering the quality of the water supply of the farm concerned.

In connection with natives' supplies, which are receiving increased attention, it was found that some of the natives in the Zambezi Valley were habitually and apparently innocuously consuming waters which contained considerable amounts of sulphuretted hydrogen.

Customs Control: This work has shown a substantial increase during the year. The object in nearly all cases is to ensure accurate Customs rating by determining the composition of the article submitted. In view of the relatively high duties upon spirit, some of which are imported at much over proof strength, every point of which counts in assessment; there is an increasing demand for absolute laboratory evaluation and it will be observed that 59 such samples were submitted during the year.

Cows' Milk: It was anticipated that the passing of the new Dairy Act would result in considerably increased control activities, but there was very little development in this direction during the year.

Of the 67 samples submitted, 66 came from Bulawayo which usually displays a particular interest in work of this nature.

The results again showed that whilst the greater majority of dairymen can be trusted to supply milk of good quality, a certain proportion are still inclined to increase returns by watering and skimming. Prosecution was advised in several cases and in one a fine of £5 was imposed. It is evident that continued vigilance is necessary to safeguard the purchasing public in this direction.

Human Milk: In several cases analysis showed that unthriftness in infants was due to poverty or lack of balance in the milk (e.g. in one case a fat content of 8.7 per cent.) and indicated the appropriate ameliorative measures.

NATIVE LIQUOR CONTROL.

(a) *Hop Beer:*

Two hundred and fifty samples were analysed. They fall under two heads, viz:—

(1) *Advisory Service*, under which any brewer of hop beer, who wishes to make sure that he is brewing within the alcoholic limits imposed by law may, for a nominal fee, obtain an analysis of his product. Of the 102 samples submitted in this way, 91 were found to be all right, but in 11 cases the brewers had to be warned that their products were over-strength.

(2) *Police Service*, under which samples taken by police officers in the course of their duties, are examined to decide whether they are substantially over the strength allowed. Of the 148 samples in this category, 70 were found to be over-strength and in all these cases prosecutions based on our affidavits led to convictions which resulted in fines that in the aggregate amounted to approximately £800. The necessity for vigilance in this connection is shown by the fact that some of the brews on sale were found to contain from 6 per cent. to 7 per cent. (Vol.) of alcohol.

(b) "*Skokiaan*," is the name employed to designate native brews (other than hop beer), of varied and occasionally rather weird character in which hops are not employed. Six of the eight samples were found to be seriously intoxicating (one containing 6.7 per cent. (Vol.) of alcohol) and in all such cases our affidavits led to convictions with fines ranging from £5 to £15.

One sample of native brewed kaffir beer had been rendered more stimulating by the addition of whisky.

(c) "*Kachasu*." With a large kaffir pot as a still and an old rifle barrel as a condenser, some natives know how to produce a sort of native "whisky," which is called "Kachasu" or "Nipa." The practice is commonest in the Eastern areas and is frequently associated with immigrants. The strength of the distillates varies over a wide range with about 30 per cent proof as a minimum, 55 per cent. as an average, whilst some samples were found to register 72 per cent., which is only a little less than the strength of neat whisky as commonly retailed in the territory. The dangers of the consumption of such liquor by natives who are only accustomed to drinking comparatively weak "porridgy" fermented beer, are obvious. There was one case in which the consumption of a large quantity in a few hours caused death from acute alcoholic poisoning. As a result of our investigations, convictions in which substantial fines were imposed were obtained in the eight cases which were referred to us.

The question of liquor control amongst the thousands of natives resident in European areas, is a knotty one. From time to time local authorities make serene proposals for repression, but it should be borne in mind that for generations kaffir beer has been freely used in the kraals so that convivial drinking has come to take a definite place in the social life of the natives. Ill-considered repression is therefore likely to stimulate criminal counter-reaction, and a fairly liberal policy, linked up with welfare efforts and control is likely to be best in the long run.

The Disinfectant Analyses were all performed for the Government in connection with the allocation of contracts for hospital and other supplies. They ensured the supply of products of the highest quality at the best prices.

Clinical Specimens: One phase of our work is to provide for the Public Health Laboratories at Salisbury and Bulawayo, a clinical background for dealing with investigations which are more involved than the more common clinical determinations. The requests made in this direction have increased and are likely to increase progressively as biochemistry develops.

Miscellaneous: With the widening of the range of our work, the number of specimens which are most aptly grouped under this heading, shows considerable increase.

A few examples will be of interest in illustration of this.

In a case in which a European died after taking very much more than the proper amount of a prescribed mixture, we were asked to decide whether the medicine had been accurately dispensed. We found that it was correctly made up.

The Government had in hand large quantities of sulphuric acid which had been used and wished to know whether it could safely be used again in automatic exchange batteries. Our work showed that it could safely be employed and thereby saved the considerable expenditure which would otherwise have been necessary.

A thorough examination of the materials used, showed that in a case in which a patient died during an operation no blame whatever could be placed upon the quality of the anaesthetics employed.

The dangers which may be associated with the cheaper brands of tinned food were demonstrated in an investigation into large consignments of tinned fish. Incipient and advanced putrescence and corrosion were found in so high a proportion of the tins, that it was considered advisable to have the entire stocks destroyed.

Several effluents, partly industrial and partly sewage, were submitted for analysis and opinion as to the best manner of disposal or as to possible utilization in power station boilers and condenser pools.

We were asked to endeavour to supply a formula for a mixture which would "rejuvenate" and protect brass, bronze and copper sections of equipment employed in the Posts and Telegraphs Department. Instances such as the above could be cited at great length but it is thought that there are enough for the purpose in mind.

Lectures to the Police: The results of our lectures on the theory and practice of the scientific investigation of crime, which are regularly given to recruit and refresher groups, continue to be so gratifying that we have been requested to widen the scope of the syllabus.

Research: An institution such as this must keep up to date, for at any time it may be called upon to advise on matters of public health, crime and law in the light of most recent knowledge and practice. Much of the front can be covered by studying and card-indexing the leading chemical journals of Great Britain and the Continent, and this we regularly try to do, though much of this work has to be taken home and done as "overtime."

Questions are however bound to arise from time to time in which the effects of local conditions are dominant, and which must therefore be worked out here. In such matters we are faced with the very difficult task of trying to sandwich carefully controlled research work into a mass of Medico legal and health work, the importance and urgency of which must always give it preference. The wonder is not that these conditions set a sharp limit to our research output, but that we do in fact break any new ground of consequence.

One matter which we had to tackle during the year was:—

The Normal Arsenic Content of Human Hair in Southern Rhodesia: We have had numerous cases referred in which we were asked whether we could find any evidence that sickness was due to repeated intake of small amounts of arsenic. Such work, involving as it does accurate assessment of very small traces, demands a high standard of analysis and the results cannot be interpreted unless the normal values for the conditions in question are known. Through the co-operation of gaolers and hairdressers we were able to obtain a considerable number of hair samples from natives and Europeans, and although we do not regard the investigation as complete, yet we believe that we have now got a fairly accurate idea of the local average and limits. Our work enabled us to pick out with certainty an abnormal European case who, when questioned, stated that he had had some injections which contained arsenic, some weeks previously.

Food Investigations: Many nations have recently shown a particular interest in the nature and composition of their foodstuffs, particularly as it has become increasingly appreciated that national health may be markedly affected by the lack of the normal traces of various elements which are commonly grouped together under the title "accessory factors."

A study of the literature has suggested that of the very large amount of work which is being performed in this field to-day, a considerable proportion is of questionable value owing to lack of co-ordination, to overlapping, to the employment of questionable analytical methods, and to failure to select and concentrate upon cardinal issues. We cannot afford to waste any of the very small amount of time we have for research and so we have taken pains to try and ensure that whatever we may be able to do is fundamentally sound and pertinent to our purpose. Through the courtesy of the State Lottery Trustees, we have recently been able to secure the most up-to-date apparatus for the accurate photometric evaluation of small traces of substances. We have drawn up a programme directed upon what appears to be the most important issues and have submitted it for criticism and comment by the head of the Food Research Division of the South African Institute of Medical Research at Johannesburg, and the Director of the Imperial Bureau of Nutrition in Great Britain. We have received most helpful comments, some of which will considerably reduce the work involved. Hence as opportunities occur we can now go ahead with the knowledge that whatever we can do will be of value, and that our small endeavours will be linked up with that of workers throughout the Empire. So that although we have so far been unable to perform any appreciable practical investigation, we are actually in a much better position than we should have attained by a large amount of costly "bull at haystack" work.

One direction in which we have made contributions of value has been in the dietary aspects of the prevention of scurvy. It is hoped that this work will bring relief under conditions which have presented special difficulties in the past.

Special Oil for Small Arms: At the request of the Commissioner of Police we performed an investigation with a view to discovering a formula (for use in all Government small arms and machine guns) of a "rifle" oil which would give specific protection against the acid corrosion of the gases produced by modern explosives.

We submitted our findings to the experts at Woolwich and have recently received a reply which appears to be of most promising nature.

CHAPTER V.—ADMINISTRATIVE.

(1) *Staff.*

1. Medical Officers (Permanent Establishment 28, Aided 10)	38
2. Radiologist	1
3. Field Officer	1
4. Schools Medical Officers	2
5. Medical Superintendents, Special Hospitals	3
6. Directors of Laboratories	1
7. Dentists	3
8. Government Analyst	1
9. Staff Matron	1
10. General Nurses (Qualified 156, Student 110)	266
11. Mental Nurses	21
12. Other European Staff	87
13. Asiatic and Native Staff	566
Total	991

(2) *Southern Rhodesia Nursing Service.*

The following are the results of the examinations held by the Southern Rhodesia Medical Council in the nurses' training schools at Salisbury and Bulawayo:—

	Number of Candidates.	Number Successful.	Number Unsuccessful.
Preliminary Examination	32	27	5
Final Examination	12	12	—

Two nurses passed the final examination with honours in October, and of these two, the one who obtained the higher marks was awarded a gold medal presented by the local branches of the British Medical Association. Among those classified as unsuccessful in the preliminary examination are included three who passed in some of the subjects.

During 1938 about 24 per cent. of the qualified nursing staff and 3 per cent. of the sisters left the Service to be married and of these only one did not take up permanent residence in the country.

(3) *Medical Council.*

The numbers on the registers of the Council at the end of 1938 are given below; though not all those registered are resident in the Colony:—

	1938. Additions	31.12.38. Total
Medical Practitioners	18	188
Dental Surgeons	1	47
Chemists and Druggists	4	94
Trained Nurses	34	316
Midwives	28	98
Mental Nurses	3	12
Masseurs and Masseuses	—	4

Included in the above figures are three medical practitioners who are registered as *locum tenens*.

As a result of the recent national emergency the available medical staff resident in Southern Rhodesia was investigated and the following is a classification of resident medical practitioners at the 31st December, 1938, in various categories:—

1. Government Service—

(a) Full-time	12
(b) Government Medical Officers	24
(c) Aided Government Officers, of which 4 are employed on mines, one by the Railways and one by a missionary body	10
2. Municipal Health Service (full-time)	4
3. Private Practice	39
4. Railways	3
5. Mines	7
6. Missions	4
7. Retired practitioners or practitioners not actually engaged in practice	13
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This compilation is not related to the actual registrations with the Medical Council, but has been made with additional information from other sources.

(4) *Training of Native Hospital Orderlies.*

The following are the results of the examinations conducted by the Southern Rhodesia Medical Council in the training schools of the Salisbury and Bulawayo Hospitals:—

	Number of Candidates.	Number Successful.	Number Unsuccessful.
Lower Examination	11	7	4
Higher Examination	9	8	1

The unsuccessful candidate in the Higher Examination and two of those in the Lower Examination satisfied the examiners in some of the subjects.

HABIT FORMING DRUGS.

Import Certificates: One hundred and three permits were issued for the importation of the following drugs during 1938 as compared with 93 in 1937:—

Drug.	1937 Grammes.	1938 Grammes.
Medical opium	1,498.75	4,613.75
Opium (in tinctures, extracts and other preparations)	7,847.0	10,547.0
Indian Hemp (in form of Galenical pre- parations)	—	395.0
Morphine alkaloid	255.44	1,377.12
Diacetyl morphine (heroin)	2.25	76.0
Ethylmorphine (dionin)	67.81	206.9
Cocaine	793.0	948.18
Methylmorphine (codeine)	352.9	860.35
Eucodal	0.35	—

Export Certificates: Twenty-one permits were issued for the exportation of the following drugs during 1938 as compared with 26 in 1937:—

Drug.	1937 Grammes.	1938 Grammes.
Opium (in tinctures, extracts and other preparations)	1,132.2	503.1
Morphine alkaloid	21.595	14.7
Diacetylmorphine (heroin)	3.1	7.0
Ethylmorphine (dionin)	—	3.2
Cocaine	28.5	32.7
Methylmorphine (codeine)	34.3	58.8

Seven permits were issued by the Veterinary Department in 1938 for the purchase of 73 ounces of tincture of opium and half an ounce of powdered opium, as against four permits in 1937 for the purchase of 44 ounces of tincture of opium.

I have the honour to be, Sir,

Your obedient Servant,

ANDREW PATON MARTIN, M.B., Ch.B., D.P.H.,
Medical Director.

CLASSIFICATION OF DEATHS (EUROPEAN), 1938.

Deaths classified according to the International Classification of Causes of Sickness and Death.

I.—INFECTIOUS AND PARASITIC DISEASES.

Classification No.	Disease.	No. of Deaths.
1	Typhoid fever	5
2	Paratyphoid fevers	1
9	Whooping cough	3
10	Diphtheria	3
11	Influenza	14
13	Dysentery	2
15	Erysipelas	1
18	Cerebro-spinal fever	1
23	Tuberculosis of the respiratory system	7
25	Tuberculosis of the intestines and peritoneum	1
26	Tuberculosis of the vertebral column	1
32	Disseminated tuberculosis	1
34	Syphilis	3
36	Purulent infection, Septicaemia	1
38	Malaria	38
42	Other diseases due to helminths	2
44	Other infectious or parasitic diseases (tick fever)	1
44:6	Blackwater fever	19

II.—CANCER AND OTHER TUMOURS.

45	Cancer of the buccal cavity and pharynx	3
46	Cancer of the digestive organs and peritoneum	21
47	Cancer of the respiratory organs	3
48	Cancer of the uterus	3
49	Cancer of the female genital organs	2
50	Cancer of the breast	5
51	Cancer of the male genito-urinary organs	8
53	Cancer of other or unspecified organs	5
54	Non-malignant tumours	1
55	Tumours of undetermined nature	2

III.—RHEUMATISM, DISEASES OF NUTRITION AND OF ENDOCRINE GLANDS, AND OTHER GENERAL DISEASES.

56	Rheumatic fever	5
57	Chronic rheumatism, Osteo-arthritis	1
58	Gout	1
59	Diabetes	13
67	Diseases of the thymus	2
69	Other general diseases	1

IV.—DISEASES OF THE BLOOD AND BLOOD-FORMING ORGANS.

71	Anaemia, Chlorosis	2
74	Other diseases of the blood and blood-forming organs	1

V.—CHRONIC POISONING.

75	Alcoholism	1
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VI.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.

79	Meningitis	2
81	Other diseases of the spinal cord	1
82	Cerebral haemorrhage, Apoplexy, etc.	11
85	Epilepsy	1
86	Infantile convulsions (age under 5 years)	3
87	Other diseases of the nervous system	2

VII.—DISEASES OF THE CIRCULATORY SYSTEM.

90	Pericarditis	1
91	Acute endocarditis	3
92	Chronic endocarditis, valvular disease	12
93	Diseases of the myocardium	36
94	Diseases of the coronary arteries, Angina pectoris	25
95	Other diseases of the heart	6
96	Aneurysm	2
97	Arterio-sclerosis	11
100	Diseases of the veins	1
102	Abnormalities of blood pressure	7

VIII.—DISEASES OF THE RESPIRATORY SYSTEM.

106	Bronchitis	6
107	Broncho-pneumonia	17
108	Lobar pneumonia	13
109	Pneumonia (not otherwise defined)	12
111	Congestion and haemorrhage infarct of lung	2
112	Asthma	2
113	Pulmonary emphysema	1
114	Other diseases of the respiratory system	12

IX.—DISEASES OF THE DIGESTIVE SYSTEM.

Classification No.	Disease.	No. of Deaths.
115	Diseases of the buccal cavity, pharynx, etc.	3
117	Ulcer of the stomach or duodenum	6
119 & 120	Diarrhoea and enteritis	10
121	Appendicitis	5
122	Hernia, intestinal obstruction	2
124	Cirrhosis of the liver	8
125	Other diseases of the liver	1
126	Biliary calculi	2
127	Other diseases of the gall bladder and ducts	2
128	Diseases of the pancreas	1
129	Peritonitis, without stated cause	1

X.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.

131	Chronic nephritis	10
132	Nephritis, not stated to be acute or chronic	5
133	Other diseases of the kidney and annexa	2
136	Diseases of the urethra, urinary abscess, etc.	1
137	Diseases of the prostate	3
139	Diseases of the female genital organs	2

XI.—DISEASES OF PREGNANCY, CHILDBIRTH AND THE PUERPERAL STATE.

141	Abortion, not returned as septic	1
145	Puerperal sepsis not returned as post-abortion	1
146	Puerperal albuminuria and convulsions	1

XII.—DISEASES OF THE SKIN AND CELLULAR TISSUE.

152	Cellulitis, acute abscess	1
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XIII.—DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.

154	Acute infective osteomyelitis and periostitis	2
156	Diseases of the joints and other organs of locomotion	1

XIV.—CONGENITAL MALFORMATIONS.

157	Congenital malformations	9
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XV.—DISEASES OF EARLY INFANCY.

158	Congenital debility	2
159	Premature birth	15
160	Injury at birth	2
161	Other diseases peculiar to early infancy	2

XVI.—OLD AGE.

162	Old age	11
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XVII.—DEATHS FROM VIOLENCE.

163	Suicide by solid or liquid poisons and corrosive substances	7
167	Suicide by firearms	8
168	Suicide by cutting or piercing instruments	1
171	Suicide by other means	1
175	Homicide by other means	1
181	Accidental burns (conflagration excepted)	2
182	Accidental mechanical suffocation	1
183	Accidental drowning	1
184	Accidental injury by firearms	2
186	Accidental injury by fall, crushing, etc.	24
188	Injury by animals (poisoning by venomous animals excepted)	1
194	Other and unstated forms of accidental violence	7
195	Violent deaths of unstated nature (i.e., accidental, suicidal, etc.)	3

XVIII.—ILL-DEFINED DISEASES.

200	Cause of death not stated or ill-defined	4
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Total 548

Details of Deaths Classified under Nos. 186, 194 and 195 of the International List.

Classification No.	Cause of Death.	No. of Deaths.
186	<i>Accidental injury by fall, crushing, etc.—</i>	
	Motor accidents	8
	Railway accidents	7
	Aeroplane accidents	5
	Fall from horse	1
	Fractured skull caused by fall	1
	Accidental fall	1
	Dredging accident (admitted from Portuguese East Africa)	1
194	<i>Other and unstated forms of accidental violence—</i>	
	Blasting accidents	2
	Fracture of femur	2
	Fracture of pelvis	2
	Fracture of skull	1
195	<i>Violent deaths of unstated nature (i.e., accidental, suicidal, etc.)—</i>	
	Cyanide poisoning	2
	Multiple injuries, cause unknown	1

TABLE SHOWING PATIENTS TREATED IN NATIVE CLINICS AND DISPENSARIES.

Native Clinic.	No. admitted to Hospital.			Inpatient Units Maintained.			Deaths.			Outpatients			Treatment.		
	V.D.	Other.	Total.	V.D.	Other.	Total.	V.D.	Other.	Total.	V.D.	Other.	Total.	V.D.	Other.	Total.
Ndanga	1,634	408	2,042	63,475	15,869	79,344	—	—	39	96	24	120	—	—	—
“A” Dispensary	834	208	1,042	36,204	9,057	45,255	—	—	2	1,651	538	2,189	—	—	—
“B” Dispensary	824	206	1,030	32,212	8,053	40,265	—	—	7	418	105	523	—	—	—
“C” Dispensary	1,003	251	1,254	29,295	7,323	36,618	—	—	8	1,124	281	1,405	—	—	—
Bikita	820	204	1,024	31,334	7,836	39,170	—	—	32	1,086	271	1,357	—	—	—
Chichidza	669	167	836	26,780	6,695	33,475	—	—	5	694	173	867	—	—	—
Matibi	411	103	514	11,032	2,758	13,790	—	—	1	439	109	548	—	—	—
Gutu	116	29	145	1,807	452	2,259	—	—	—	223	55	278	—	—	—
Chingombe	345	86	431	7,280	1,820	9,100	—	—	3	1,208	302	1,510	—	—	—
“G” Dispensary	1,292	323	1,615	40,754	10,188	50,942	—	—	9	2,288	572	2,860	—	—	—
Total (Ndanga Unit)	7,948	1,985	9,933	280,173	70,045	350,218	—	—	106	9,227	2,430	11,657	—	—	—
Chibi	1,661	—	1,661	44,484	—	44,484	3	—	3	—	—	600	—	—	—
Chilimanzi	185	184	369	6,464	5,820	12,284	1	5	6	57	656	713	1,029	5,240	6,269
Chipinga							Not available								
Chinomwe							Not available								
Concession	365	556	921	17,866	16,426	34,292	2	49	51	12	673	685	108	14,530	14,638
Filabusi	367	232	599	—	—	—	—	—	—	242	717	959	—	—	—
Gwaai Siding	2	4	6	79	151	230	—	—	—	36	311	349	98	554	652
Gokwe	—	56	56	—	836	836	—	2	2	—	434	434	—	—	—
Hartley	99	237	336	3,017	3,962	6,979	4	18	22	—	91	91	—	—	—
Inyanga	11	83	94	52	1,096	1,148	—	5	5	65	712	777	56	644	700
Inyati	204	349	553	—	—	—	—	—	—	—	—	—	4,579	3,317	7,896
Jena							Not available								

Kezi	—	3	—	—	33	—	—	—	—	423	—	1,145	1,145
Kutama	236	233	469	—	—	5,800	2	11	13	4,448	1,288	12,654	13,942
Makumbi	20	526	546	—	6,312	6,616	—	—	—	2,375	234	7,348	7,582
Marandellas	581	422	1,003	20,335	4,642	24,977	6	23	29	914	—	—	—
Matobo*													
Mtoko	167	676	843	—	—	Not available	1	14	15	—	891	16,243	17,134
Miami	1	33	34	4	266	270	—	1	1	88	23	88	111
Mt. Darwin	63	804	867	2,816	6,731	9,547	—	7	7	401	150	1,737	1,887
Mphoengs	2	30	32	84	210	294	—	—	—	495	368	950	1,318
Mrewa	232	632	864	8,473	11,319	19,792	5	18	23	4,671	—	6,752	6,752
Murabghi													
Odzi	—	—	—	—	—	Not available	—	—	—	1,412	2,178	5,648	7,826
Plumtree	300	642	942	10,344	15,007	25,351	12	24	36	668	1,246	3,029	4,275
Selukwe	523	618	1,141	29,925	13,544	43,469	7	43	50	874	—	—	—
Sipolilo	27	102	129	1,476	3,047	4,523	—	4	4	602	198	1,780	1,978
Tjolotjo	130	463	593	3,749	7,123	10,872	7	8	15	1,096	1,260	16,768	18,028
Tzouzo	46	345	391	474	3,783	4,257	—	3	3	4,182	3,486	19,052	22,538
Umvuma	92	224	316	2,962	3,228	6,190	1	4	5	847	981	4,295	5,276
Lukosi	266	162	428	6,558	2,677	9,235	—	9	9	1,285	4,347	12,525	16,872
Wedza	501	628	1,109	9,317	10,447	19,764	—	5	5	6,215	576	16,863	17,439
Chiduku	—	123	123	—	1,814	1,814	—	—	—	1,139	—	7,194	7,194
Fort Usher, V.D.	603	160	763	18,687	1,797	20,484	15	—	15	1,278	1,387	3,771	5,158
Gatooma, V.D.	984	27	1,011	55,146	594	55,740	5	—	5	—	137	—	137
Butjet	—	—	—	—	—	—	—	—	—	300	—	—	—
Totals	7,668	8,554	16,202	242,616	121,865	370,281	71	253	324	38,307	24,620	162,247	186,867
Ndanga Units	7,948	1,985	9,933	280,173	70,045	350,218	106	106	106	2,430	—	—	—
Total	15,616	10,539	26,135	522,789	191,910	720,499	430	430	430	40,737	24,620	162,247	186,867

* Figures included in Fort Usher return.

† Opened October, 1938.

RETURN OF FREE PATIENTS MAINTAINED IN GOVERNMENT HOSPITALS.

Name of hospital.	Number of free patients maintained.			No. of free patient units.		
	European.	Coloured and native.	Total.	European.	Coloured and native.	Total.
Salisbury ...	478	2,251	2,729	11,260	42,637	53,897
Bulawayo ...	514	2,681	3,195	11,564	41,386	52,950
Gwelo ...	115	935	1,050	997	23,584	24,581
Gatooma ...	49	804	853	753	20,315	21,068
Umtali ...	139	1,198	1,337	1,752	24,762	26,514
Gwanda ...	14	736	750	106	8,907	9,013
Fort Victoria ...	99	465	564	613	9,042	9,655
Enkeldoorn ...	47	549	596	1,373	11,188	12,561
Que Que ...	22	319	341	210	2,728	2,938
Bindura ...	12	239	251	205	7,271	7,476
Shamva ...	3	353	356	19	5,347	5,366
Sinoia ...	28	379	407	183	8,024	8,207
Rusapi ...	13	284	297	136	7,712	7,848
Sub Totals	1,533	11,193	12,726	29,171	212,903	242,074
Ingutsheni Mental Hospital	94	483	577	25,450	105,862	131,312
Grand Totals	1,627	11,676	13,303	54,621	318,765	373,386

STAFFING, BEDS AND PATIENTS AT GOVERNMENT HOSPITALS.

Name of hospital.	Staff nursing.		No. of beds.		No. of cases treated.			Daily average of patients treated.			No. of units maintained (patients).			Average No. of days in hospital (patients).	
	E.	N.	European.	Coloured and native.	European.	Coloured and native.	Total.	European	Coloured and native	Total.	European.	Coloured and native.	Total.	European.	Coloured and native.
Salisbury ...	85	20	120	125	2,868	2,934	5,802	103.40	136.50	239.90	37,755	49,837	87,592	13.16	13.54
Bulawayo ...	84	16	129	153	2,459	4,265	6,724	85.79	166.12	251.91	31,312	59,769	91,081	10.91	14.00
Gwelo ...	13	22	56	64	518	1,210	1,728	12.41	82.38	94.79	4,530	30,069	34,599	8.39	24.85
Umtali ...	15	12	38	48	868	1,457	2,325	20.79	78.78	99.57	7,589	28,758	36,347	8.70	19.00
Gatooma ...	12	15	39	100	650	1,561	2,211	17.63	96.24	113.87	6,435	35,127	41,564	9.80	22.50
Gwanda ...	5	5	7	84	97	1,154	1,251	2.26	68.36	70.62	824	24,950	25,774	8.50	21.40
Fort Victoria	6	9	19	32	373	1,052	1,425	1.00?	3.00	4.00	2,223	11,626	13,849	5.96	11.05
Enkeldoorn	5	4	16	44	82	546	628	4.80	30.65	35.45	1,764	11,455	13,219	21.73	20.96
Que Que ...	4	4	10	24	154	316	470	3.80	14.10	17.90	1,385	3,875	5,260	9.00	12.20
Bindura ...	4	7	6	25	136	473	609	4.26	30.37	34.63	1,556	11,087	12,643	11.44	23.44
Shamva ...	3	7	14	36	45	405	450	0.67	22.74	23.41	244	8,302	8,546	5.42	20.49
Sinoia ...	5	4	12	28	180	804	984	3.70	43.40	47.10	1,210	15,851	17,061	6.72	19.71
Rusapi ...	3	5	6	40	80	298	378	2.20	35.00	37.20	618	7,712	8,330	7.70	25.80
Totals	244	130	472	803	8,510	16,475	24,985	262.71	807.64	1,070.35	97,447	298,418	395,865	11.45	18.11
Ingutsheni Mental Hospital	20	30	105	192	161	540	701	99.21	325.57	424.78	36,212	118,834	155,046	224.90	287.10

6.09 30.0 36.09

Table showing number of Inpatients and Outpatients treated at Medical Missions, together with number of Units maintained, Deaths and Treatments, both Venereal Diseases and General, during the year 1938.

Mission.	Admissions.		Inpatients Units		Deaths.		Outpatients.		Outpatient Treatments.						
	V.D.	Other.	Total.	V.D.	Other.	Total.	V.D.	Other.	Total.	V.D.	Other.	Total.			
Mt. Silinda	143	968	1,111	2,787	17,059	19,846	4	21	25	75	2,182	2,257	290	5,706	5,996
Chikore	9	384	393	275	2,539	2,814	1	10	11	30	905	935	75	2,680	2,755
Gutu	40	110	150	656	6,543	7,199	—	9	9	312	2,686	2,998	1,600	6,084	7,684
Mnene	879	836	1,715	27,763	24,305	52,068	4	33	37	109	629	738	763	1,957	2,720
Msasa	738	274	1,012	21,327	7,847	29,174	4	10	14	110	325	435	1,070	2,809	3,879
Old Umtali	112	500	612	1,055	4,138	5,193	—	5	5	400	4,473	4,873	1,156	10,138	11,294
Fairfield Girls' School	12	127	139	110	982	1,092	1	3	4	16	180	196	342	3,089	3,431
Howard Training Institute	4	158	162	35	1,235	1,270	—	2	2	42	1,922	1,964	289	13,158	13,447
Driefontein	1	128	129	37	1,364	1,401	—	5	5	17	2,984	3,001	145	10,995	11,140
Triashill	2	360	362	10	4,682	4,692	—	14	14	—	2,114	2,114	—	4,303	4,303
Empandeni	—	132	132	—	753	753	—	2	2	19	613	632	129	1,215	1,344
Epworth	—	—	—	—	—	—	—	—	—	—	505	505	—	1,534	1,534
St. Albans	—	230	230	—	1,398	1,398	—	—	—	—	2,349	2,349	—	7,046	7,046
Mtshabeze	90	266	356	1,741	4,425	6,193	2	2	4	760	1,018	1,778	1,460	5,703	7,163
Solusi	—	—	—	—	—	—	—	—	—	—	974	1,175	1,006	8,341	9,347
St. Patrick's	2	19	21	6	125	131	1	2	3	201	1,083	1,217	748	2,221	2,959
Monte Casino	26	184	210	300	1,634	1,934	4	12	16	6	812	818	84	4,644	4,728
Kwenda	—	35	35	—	281	281	—	3	3	—	1,020	1,020	—	1,890	1,890
Zambesi Industrial	—	—	—	—	—	—	—	—	—	—	586	586	—	1,101	1,101
Waddilove	9	341	350	37	2,854	2,891	—	8	8	6	2,261	2,267	20	10,920	10,940
Ingwenya	—	—	—	—	—	—	—	—	—	105	1,400	1,505	600	1,800	2,400
St. Barbara's	—	111	111	—	4,039	4,039	—	—	—	—	2,075	2,075	—	20,568	20,568
Matobo Training Institute	—	8	8	—	53	53	—	—	—	—	517	517	—	5,717	5,717
St. David's	13	168	181	312	1,661	1,973	1	10	11	76	1,218	1,294	411	5,813	6,224
Ingwani	—	58	58	—	623	623	—	—	—	—	295	295	—	1,321	1,321
St. Mary's	—	1	1	—	5	5	—	—	—	—	816	816	—	1,429	1,429
Lower Gwelo	—	—	—	—	—	—	—	—	—	—	—	—	99	1,298	1,397
Sub-totals	2,080	5,398	7,478	56,451	88,572	145,023	23	150	173	2,418	35,942	38,360	10,287	143,470	153,757
Semokwe	—	24	24	—	278	278	—	3	3	—	—	—	2,230	2,230	2,230
Morgenster	—	644	644	—	5,782	5,782	—	32	32	784	5,561	6,345	58,144	58,144	58,144
Sub-totals	2,080	6,066	8,146	56,451	94,632	151,083	23	185	208	3,202	41,503	44,705	214,131	214,131	214,131
Nyadire	23	1,578	1,601	—	9,075	9,075	2	22	24	2,585	2,585	2,585	14,892	14,892	14,892
Rusitu	—	186	186	—	—	—	—	5	5	—	—	—	4,834	4,834	4,834
Mutambara	75	672	747	—	14,371	14,371	—	32	32	18,148	18,148	18,148	30,246	30,246	30,246
All Souls	—	—	—	—	—	—	—	—	—	—	—	—	366	366	366
Total	2,178	8,502	10,680	174,529	174,529	174,529	25	244	269	65,438	65,438	65,438	264,469	264,469	264,469